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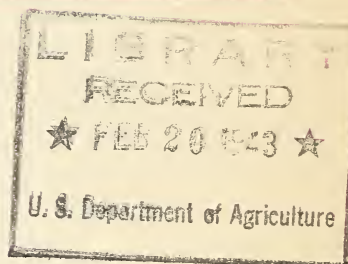
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Spring 1942/43  
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# EDUCATION and TRAINING

BY AND FOR

## FEDERAL EMPLOYEES



*Spring Semester, 1942-43*

### *Bulletin of Information and Courses*

UNITED STATES DEPARTMENT OF AGRICULTURE

## GRADUATE SCHOOL

## ADMINISTRATION

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Hours—8:40 A.M. to 6:20 P.M. (1 P.M. Saturdays)

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DEPARTMENT OF AGRICULTURE

*Between 12th and 14th on Independence Avenue, S. W.*

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
GRADUATE SCHOOL

GRADUATE, UNDERGRADUATE, AND NON-ACADEMIC

*Opportunities for Continuation Study  
in the Federal Service*

*Spring Semester, 1942-43*

BULLETIN OF INFORMATION  
AND COURSES

WASHINGTON

1943

*Spring Semester Begins February 1.*

*For complete registration information, see pages 6 to 8.*

*Mail registration forms  
will be supplied  
upon request*

# DEPARTMENT OF AGRICULTURE

## GRADUATE SCHOOL

### GENERAL INFORMATION

The Graduate School exists to stimulate and encourage post-entry education and to afford opportunities for the education and training of employees of the Department of Agriculture. Its courses are open, however, to all qualified Federal employees, for whom it constitutes a center of learning after official working hours. In fulfilling the purpose for which it was established by Secretary Henry C. Wallace in 1921, the School now offers a wide variety of courses ranging from the relatively elementary to the most advanced opportunities for continuation study, and sponsors each year one or more general lecture series in which nationally-known authorities participate. Last year more than 5,000 individuals, representing all agencies of the Federal Government, were enrolled in these courses, exclusive of several hundreds who attended the general lectures.

The School operates in the conviction that study-experience and work-experience can be combined to the advantage of both, the work-experience accelerating and imparting meaning and motive to the learning process, and the study-experience improving and supplying understanding and competence to the work situation. It also operates in the conviction that, inasmuch as after-work activities and off-the-job environment have a vital relation to morale and performance on the job, the public interest is served by providing Federal employees with broad opportunities for continuation study along the lines of their *general* interests as *individuals* as well as their *special* interests as *employees*. Courses, as a result, range from the cultural to the vocational, without exclusive emphasis on either. They cover a wide variety of subjects for other reasons: because the interests and activities of the Department of Agriculture are extraordinarily broad and diversified, and because an effort has been made, in a few cases, to meet the needs of special groups of Federal employees, particularly in fields requiring war-training facilities.

### OBJECTIVES

In its 21 years of constant endeavor to meet the changing educational needs of Federal employees, the School has become a unique educational institution combining, in effect, a graduate school, an in-service training institute, and an adult education organization. These three roles are implicit in the major objectives of the School:



1. To provide graduate education acceptable in graduate institutions for the convenience of employees who desire advanced degrees but find it difficult, both for personal and official reasons, to complete all study in residence at the degree-granting institution.

2. To supplement in-service training programs, conducted on government time and at government expense, by making it possible for employees to train themselves both intensively and extensively for proficiency in their present positions and for advancement to better positions.

3. To provide certain cultural, creative, and leisure-time opportunities for employees.

4. To assure the attainment of these objectives by making available to employees the experience, knowledge, and instructional talent of outstanding specialists in the Federal service.

## ROLE IN THE DEPARTMENT

The Graduate School makes a genuine contribution to morale and competence among employees of the Department of Agriculture; otherwise, there would be no reason for its continuation. Its contribution to progressive personnel administration is made by supplying opportunities to escape blind-alley positions, to prepare for promotions, to find creative after-hours outlets, to escape from office routines, to cultivate genuine interests, to gain self-improvement, to find intellectual challenges equal to one's capacity, to keep abreast of an entire field or series of fields of knowledge when the daily job may require knowledge of only one small segment of a single field, and to understand and appreciate relationships between one's own special task and the tasks of others. The relation of this program to Departmental management is recognized by Secretarial Memorandum, which names the Director of Personnel of the Department as *ex officio* chairman of the General Administration Board of the School.

The School also serves the Department in supplementing in-service training programs, elaborating upon them, and carrying on from where they leave off. Whereas training conducted on government time is likely to be confined to immediate needs and to knowledge and skills which will give fairly definite and tangible returns to the government, the Graduate School can and does offer training opportunities no less vital to the government but vital in a more indirect, long-run, and often intangible manner. It supplies opportunities which training officers, for financial and many other administrative reasons, are not able to make available at government expense and on government time. While the in-service training program gives



primary, if not exclusive, attention to training needs as seen by management, the Graduate School can and does respond to the needs and desires of the employees, many of whom are seeking to prepare themselves for promotional opportunities entirely beyond the interest and jurisdiction of the training officers of the agencies in which the employees are located. By close cooperation between (1) official in-service training provided by the Office of Personnel and the bureaus and (2) semi-official after-hours training provided by the Graduate School, the training and educational program of the Department of Agriculture as a whole is made much more comprehensive, flexible, and responsive to the needs both of employees and of management.

## AUTHORITY

Facilities for study and research in the government departments are made available by Congressional authority to qualified individuals, students, and graduates of institutions of learning in the several states and the District of Columbia under such rules and restrictions as the heads of departments and bureaus may prescribe (Joint Res. April 12, 1892, 27 Stat. 395; Deficiency Act of March 3, 1901, 31 Stat. 1010, 1039). Under this authority and the provisions of the Organic Act of the Department, the Graduate School was organized in 1921 with the approval and encouragement of the Secretary of Agriculture.

## ADMINISTRATION

The School is a self-supporting, non-profit institution. It receives no Federal funds. Its government is vested in the General Administration Board, appointed by the Secretary of Agriculture. Its administration is vested in the Director, appointed by the Board, and a small administrative staff. These have the advisory assistance of the Director Emeritus and Educational Adviser and eight committees named by the Board, one for each of the major divisions of the School. Members of the Board and of the committees serve without compensation.

## FACULTY

Graduate School instructors are drawn almost entirely from the Federal service, a source of talent and expertness unexcelled anywhere in the nation. There is but one criterion for their selection—competence. Faculty members combine excellent academic training, college teaching experience, and daily practice in the application of the subject matter taught. The only exception to this pattern of

qualifications is found in a few cases obviously requiring greater emphasis on technical experience than on academic background. For a brief note about each instructor, see the "Faculty" section.

### CERTIFIED STATEMENTS OF ACCOMPLISHMENT

In three fields—statistics, public administration, and accounting—the Graduate School offers Certified Statements of Accomplishment upon the student's completion of a specified program of study. (For complete details see the Departments of Public Administration and Mathematics and Statistics.) These Statements are offered to encourage the student to complete a well-rounded approach to his chosen field of study and work, so that he may more competently discharge his present and prospective responsibilities as a public servant.

### WAR TRAINING

Later in the spring the Graduate School will announce a new series of war-training courses specifically aimed at meeting the need for trained personnel in certain critical occupational areas. As last year, when more than a thousand students took special courses of this type, the new courses will be based on a careful survey of the most urgent needs as expressed by Federal recruitment and placement officers. Lists of students who successfully complete the courses will be made available to the United States Civil Service Commission, for use at the Commission's discretion in its placement and transfer programs.

### STUDENT COUNSELING

To aid students in planning their education and training, the Department of Agriculture recently named 15 Educational Counselors to be of assistance in as many major fields of study and work. These men and women, all recognized for their competence in their respective fields, are always available for consultation on educational plans, whether to be pursued in the Graduate School or any other educational institution. All Counselors are also members of the departmental committees of the Graduate School. Their names and special fields may be found by referring to these committees, listed under each of the eight departmental headings in this bulletin.

For assistance in selecting particular Graduate School courses for the spring semester, special facilities are described under "Planning Your Program," page 7.

## LIBRARY FACILITIES

The Department of Agriculture Library, containing approximately half a million books, is open to Graduate School students from 8:30 a.m. to 8:30 p.m. Through that Library, the School also has ready and convenient access to unexcelled special libraries and to the Library of Congress.

## LIBRARY ASSISTANTSHIPS

A limited number of library assistantships are open to qualified students from the Department of Agriculture who wish to use this method of paying their fees. All work is done after official hours. Students interested should inquire at the School Office.

## LECTURES AND PUBLICATIONS

As usual, at least one lecture series dealing with a major current problem will be offered this semester. The detailed program will be made available by special announcement. Additional lectures will also be offered in continuation of the series on the general theme, "War Issues and Postwar Adjustment."

Several of the lectures of previous years, and a few other valuable works, are available as Graduate School publications. (See list on inside back cover.)

## REGISTRATION AND FEES

### *Spring Semester Begins February 1*

**REGISTRATION.** Registration should be made at the earliest opportunity in Room 1031, South Building, Department of Agriculture. The School Office will be open from 8:40 a.m. to 6:20 p.m. (1 p.m. on Saturdays). Registration should be completed before the semester opens on February 1.

**LATE REGISTRATION FEE.** Students who register after February 13 must pay an additional fee of \$1.00 a course. This does not apply to courses which begin after February 13 nor to persons who submit written evidence that official government action prevented their registration prior to that date.

**FEES.** The fee for each course is indicated in the course description. Unless otherwise stated, fees are computed at the rate of \$6.00 a credit hour for undergraduate courses marked L and U and \$7.00 a credit hour for graduate and the most advanced undergraduate courses marked G and GU.

**PARTIAL PAYMENT PLAN.** Arrangements may be made at the time of registration for paying in two installments, for which there will be an additional service charge of \$1.00 for each course. The first installment of not less than half the full fee, plus the \$1.00 service charge, must be paid at the time of registration. *The second and final installment must be paid on or before March 17.* Failure to pay will result in automatic suspension from class.

**REFUNDS.** Students withdrawing from classes will not be entitled to refunds, except that—

1. When a student is OFFICIALLY transferred out of the Washington area, his fees will be refunded in the amount proportionate to the unexpired portion of the semester, provided written evidence of such transfer is presented. This does not apply to cases arising out of the student's voluntary action.
2. When a student is granted permission to withdraw from a class during the first two weeks of the course, his fee, minus a \$3 registration charge, will be refunded.

Refunds are made on no other basis. All adjustments are made as of the date on which application for refund is received.

**ROOM ASSIGNMENTS.** Room assignments for classes may be obtained from the School Office after January 28 or from the Graduate School bulletin board outside Room 1031, South Building.



## CREDIT AND CERTIFICATION

**ACADEMIC CREDIT.** The United States Civil Service Commission accepts Graduate School credits, the same as credits from recognized colleges and universities, for examination and qualification purposes. Although courses are of standard college grade for the levels indicated, with the exception of a few non-credit courses given to meet special training needs of Federal employees, the School does not grant degrees and has never sought that authority. It prefers to cooperate with existing institutions having that function. Certifications of Graduate School work have been accepted for the past twenty years by many of the leading colleges and universities. Because of the unusual conditions under which the School operates, it has never asked, and never felt it necessary to ask, to be included on the lists of accrediting associations. For acceptance of its credits, it relies on the merits of its courses and on the reputation and recognized competence of its instructors. Methods, grades, and credits are considered meaningless unless they result in demonstrated knowledge, skills, and attitudes and in demonstrated ability to make effective application. Course requirements and comprehensive examinations for credit are planned accordingly.

**PLANNING YOUR PROGRAM.** During the period from January 25 to January 29 (after 5:30 p.m.), representatives of the major departments of the School will be available for consultation on courses and programs of study. Students who want credit certified to a college or university should, whenever possible, arrange their programs with the institution to which credits are to be sent. Graduate programs should be arranged in advance through the dean of the graduate school of the institution from which the degree is contemplated. The latest catalogs of colleges and universities are available for examination in the Graduate School Office. Officers of the School and instructors will be glad to assist students in planning programs.

**CERTIFICATION OF STUDENT'S RECORD.** Upon the student's written request, an official certification bearing the seal of the Graduate School will be sent to him or to an educational institution or other organization designated by him. The fee for this service is 50 cents a copy prepaid. (Note: Students who desire certification of work done prior to the academic year 1941-42 must comply with certification rules in effect at the time the student was enrolled.)

**COOPERATION WITH THE AMERICAN UNIVERSITY.** The Graduate School of the Department of Agriculture and the Graduate Division of the School of Social Sciences and Public Affairs of The American

University have found it mutually advantageous to cooperate in certain portions of their graduate programs. Certain courses in each school which supplement courses in the other are offered cooperatively. Graduate School students who take such courses (preceded by an asterisk) are eligible for residence credit at The American University.

TRANSCRIPTS. Certification for academic credit will not be made until the student has secured from the schools attended a transcript of his academic work and filed it with the Graduate School. Students who enroll in courses given in cooperation with The American University and desire credit at American must file a transcript with that institution and otherwise comply with its rules.

### COURSE SYMBOLS

- L—Lower division course
- U—Upper division course
- G—Graduate course
- GU—Graduate and most advanced undergraduate course
- N—Non-credit course

The numbers following these letters indicate credits and whether the course is a one-semester or full-year course. G-2 indicates a one-semester course of graduate level, offering two credits or two semester hours. G-2-2 means that the course is a full-year course offering two credits each semester.

# DEPARTMENT OF MATHEMATICS AND STATISTICS

## DEPARTMENTAL COMMITTEE

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M. A. GIRSHICK, M.A., *Senior Agricultural Statistician, Bureau of Agricultural Economics*

## OPPORTUNITIES FOR STUDY

To a greater extent than ever before, our country is dependent on the analysis of quantitative data. Action in the solution of problems in industrial and agricultural production requires prediction, which in turn requires skill in the collection, evaluation, and analysis of data, plus knowledge of the subject matter gained through studies of economics, sociology, engineering, or other branches of the natural and social sciences. In industry and in the government service, the demand for valid methods of prediction as a basis for action is placing more and more stringent requirements on statistical methods, as more and more is expected of public programs designed to stabilize or improve economic and social conditions. Making predictions and recommendations for action is the special business of the statistician.

The situation in Washington creates an unusual opportunity for students who wish to pursue studies in statistics. For years, Washington has more and more been becoming the center of many activities, political, economic, and scientific. To serve the public in these fields the government has brought in men of education and experience who by the nature of their daily duties must make predictions, recommend action, and face the consequences. They are daily faced with realities and responsibilities; they are daily solving problems that must be solved. The instructors in the Graduate School are drawn from such men.

Employment opportunities are greater now than ever before for people trained in the statistical aspects of various fields of subject matter. The demand ranges from the statistical clerk who may need training in only one or two basic courses, on up to the highest-grade professional statistician who must be thoroughly trained not only in some field of subject matter, but also in higher mathematics and advanced statistical courses. The courses offered in the Graduate



School program are designed to afford training at all levels, from the most elementary to the most advanced, with applied courses in several fields of subject matter.

### EMERGENCY TRAINING COURSES

The depletion of trained staffs, coupled with the unprecedented demand for tabulation and analysis of quantitative data by the War and Navy Departments, the War Production Board, Office of Price Administration, and other government agencies, together have brought about an urgent demand for satisfactory replacement personnel. There is particular need for the attainment of familiarity with data already in existence, the more efficient use of existing tabulating machine capacity, and the ability to design and supervise hand tabulations. This demand must be met. The solution lies in the intensive training of new workers to fill the gaps—in particular, in special training for workers who expect to remain on the job. To this end, the Graduate School is offering several non-mathematical courses, designed particularly to alleviate and avoid shortages both in machine equipment and in trained personnel.

### CERTIFIED STATEMENTS OF ACCOMPLISHMENT

A Certified Statement of Accomplishment is offered in each of four fields of statistical study—fields representing areas of statistical preparation and application most useful in the public service. The required program in each field is outlined below. The student who *completes the basic courses and earns 24 credits in specialized courses listed in any column*, with substitutions only as specifically approved, is eligible to receive a Certificate Statement of Accomplishment bearing the official seal of the School and signed by the Director and the Chairman of the Department of Mathematics and Statistics. The Statement is not a diploma nor simply a transcript of credit, but it combines certain useful features of both. It is a certification that the student has completed a program of study which, in conjunction with his assumed training in a subject-matter field of application, prepares him for effective public service in a particular statistical field. Courses completed and the quality of accomplishment will be recorded on the back of the Statement, which may be used as a personal record of achievement or a public record of qualification.

### SUGGESTIONS FOR PROGRAMS OF STUDY

The study of statistics is the study of collecting and evaluating evidence, making predictions, and recommending action. Statistics does not exist as a science by itself; it is a tool, helpful to science.

The principles of statistical inference are the same in all sciences, natural and social, but different problems and requirements do demand adjustment of statistical procedures to the individual situation. The courses offered on the following pages provide training in general principles, and illustrations of specific application.

The fundamental requirement of a good statistician is that he know the subject matter of the field that he is working in. The channels of statistical study offered here will not by themselves produce a statistician. As statistical inference is only a tool for prediction in the natural and social sciences, the student of statistics who desires to obtain a certificate is expected to attain competence in some special field, such as economics, sociology, biology, agriculture, or engineering. A certificate in statistics means that the student has completed the statistical part of his training; and the Departmental Committee must be satisfied, before granting a Certified Statement, that the student is qualified in the subject matter of a particular field.

Persons who do not intend to become professional statisticians but simply desire to learn the elements of statistics as a tool subject, or persons who desire to train for clerical-statistical positions, should, of course, ignore the requirements for a Certified Statement and concentrate on basic courses suited to their special needs.

Survey of Statistics is especially designed to meet the needs of statistical clerks and persons desiring to become statistical clerks.

The Civil Service Commission has set the following requirements for statisticians:

Junior grade—six semester hours of statistics

(Junior Agricultural Statisticians may have three hours of statistics and three hours of college algebra)

Assistant grade—six additional hours of graduate training in statistics (total of twelve hours)

Associate grade—six additional hours of graduate training in statistics (total of eighteen hours)

These are minima in statistical training and, it should be clearly understood, are required *in addition* to other requirements of general education, professional specialization, and experience.

## OUTSIDE LECTURES

The Graduate School has made a practice of bringing one or two outside leaders in statistical thinking to Washington annually. In the past, the following eminent authorities have lectured here: R. A. Fisher, John Wishart, Walter A. Shewhart, J. Neyman, Frank Yates, Harold Hotelling, and Harold Jeffreys. Some of these lectures are available in print; see the list of publications at the back.

# COURSES LEADING TO CERTIFIED STATEMENTS OF ACCOMPLISHMENT IN STATISTICS

*With Concentration in One of the Following Fields of Application*

## PROCESSING OF DATA

## SOCIAL SCIENCES

## BIOLOGICAL AND PHYSICAL SCIENCES

## DESIGN AND INTERPRETA- TION OF SAMPLING SURVEYS

### *BASIC COURSES—Required of all candidates*

L-2-2. College Algebra <i>A. George Carlton</i>	L-2-2. College Algebra <i>A. George Carlton</i>	L-2-2. College Algebra <i>A. George Carlton</i>	L-2-2. College Algebra <i>A. George Carlton</i>
L-2. Graphic Methods for Pre- sented Statistical Data <i>R. G. Hainsworth</i>	L-2. Trigonometry and Ana- lytic Geometry <i>A. George Carlton</i>	L-2. Trigonometry and Ana- lytic Geometry <i>A. George Carlton</i>	L-2. Trigonometry and Ana- lytic Geometry <i>A. George Carlton</i>
L-2-2. Introduction to Statis- tical Analysis <i>Maj. Solomon Kullback, Dr. Ben- jamin Tepping, Messrs. C. M. Purves and Sidney Wilcox</i>	L-2-2. Introduction to Statis- tical Analysis <i>Maj. Solomon Kullback, Dr. Ben- jamin Tepping, Messrs. C. M. Purves and Sidney Wilcox</i>	L-2 or 3. Introduction to Ex- perimental Design <i>Dr. Otis A. Pope</i> or L-2-2. Introduction to Statis- tical Analysis <i>Maj. Solomon Kullback, Dr. Ben- jamin Tepping, Messrs. C. M. Purves and Sidney Wilcox</i>	L-2-2. Introduction to Statis- tical Analysis <i>Maj. Solomon Kullback, Dr. Ben- jamin Tepping, Messrs. C. M. Purves and Sidney Wilcox</i>

### *SPECIALIZED COURSES—24 credits, selected from appropriate field of application, required of all candidates*

U-2. Machine Tabulation <i>Milton Kaufman</i>	L-3-3. Calculus <i>Dr. E. J. Finan</i>	L-3-3. Calculus <i>Dr. E. J. Finan</i>	L-3-3. Calculus <i>Dr. E. J. Finan</i>
U-2. Advanced Study of Tabu- lating Equipment <i>Milton Kaufman</i>	G-2-2. Interpretation of Statis- tical Calculations <i>Alexander Sturges</i>	G-2 or 3. Design and Analysis of Complex Experiments <i>Dr. A. E. Brandt</i>	G-2 or 3. Design and Analysis of Complex Experiments <i>Dr. A. E. Brandt</i>

G-2. Planning of Statistical In- quiries <i>Dr. Philip M. Hauser</i>	G-2. Planning of Statistical In- quiries <i>Dr. Philip M. Hauser</i>	G-3. Quality Control <i>Dr. W. Edwards Deming</i>	G-2-2. Theory of Functions <i>Dr. C. Winston</i>
G-2. Office Procedures and Esti- mates <i>Dr. Philip M. Hauser</i>	G-2. Office Procedures and Esti- mates <i>Dr. Philip M. Hauser</i>	G-2-2. Interpretation of Statis- tical Calculations <i>Alexander Sturges</i>	G-3-3. Statistical Inference <i>Dr. W. Edwards Deming</i>
GU-2-2. Selected Statistical Problems <i>Dr. John H. Smith</i>	G-2. Sampling in Social and Economic Surveys <i>J. Stevens Stock and Lester R. Frankel</i> or G-2-2. Theory of Sampling <i>Jerome Cornfield and W. D. Evans</i>	G-3. Interpolation <i>Dr. W. Edwards Deming</i> or G-2. Statistics of Crop Estim- ating <i>Dr. A. E. Brandt</i>	G-2-2. Theory of Sample Sur- veys <i>Dr. William G. Madow and William Hurwitz</i>
G-2-2. Interpretation of Statis- tical Calculations <i>Alexander Sturges</i>	G-2-2. Population Statistics <i>Dr. Philip M. Hauser</i> or G-2-2. Statistical Analysis of Economic and Social Prob- lems <i>Milton Friedman</i> or G-2-2. Statistics of Agricultural Economics <i>Dr. F. V. Waugh</i>	G-3-3. Statistical Inference <i>Dr. W. Edwards Deming</i>	G-2. Linear Algebra <i>M. A. Girshick</i>
G-2-2. Population Statistics <i>Dr. Philip M. Hauser</i>	G-2-2. Population Statistics <i>Dr. Philip M. Hauser</i> or G-2-2. Statistical Analysis of Economic and Social Prob- lems <i>Milton Friedman</i> or G-2-2. Statistics of Agricultural Economics <i>Dr. F. V. Waugh</i>	G-2-2. Statistical Methods for Research Workers <i>Dr. William G. Madow</i>	G-2-2. Multivariate Analysis <i>M. A. Girshick</i>
G-3. Operation of Statistical Studies <i>Howard Brunsman, Dr. Philip M. Hauser, and Staff</i>	G-2-2. Statistical Analysis of Economic and Social Prob- lems <i>Milton Friedman</i> or G-2-2. Statistics of Agricultural Economics <i>Dr. F. V. Waugh</i>	G-3. Least Squares and Curve Fitting <i>Dr. W. Edwards Deming</i>	G-2. Analysis of Variance <i>M. A. Girshick</i>
G-2. Statistical Clinic <i>Morris H. Hansen, M. A. Girshick, and Staff</i>	G-2-2. Psychological and Edu- cational Statistics		G-2-2. Modern Statistical Theories <i>Lieut. Joseph Daly</i>

### ELECTIVE COURSES

- U-3. Higher Algebra—*Dr. E. J. Finan* (may be substituted for Linear Algebra as a prerequisite for Multivariate Analysis)
- U-2. Coordinate Geometry and Vectors—*Dr. Sebastian Littauer*
- U-1. Nomograms—*Lieut. Eugene Rasor*
- GU-2-2. Advanced Calculus
- G-2-2. Differential Equations
- G-2-2. Theory of Infinite Processes—*Dr. C. Winston*
- G-1. Interpolation, Approximation, and Quadrature—*Dr. J. Shohat*
- G-2-2. Theory and Application of the Characteristic Function—*Maj. Solomon Kullback*





## MATHEMATICS

### N-0. REVIEW OF MATHEMATICS

EMIL SCHELL

*Tu 6-9 beginning Feb. 2. \$18.*

A review course on the first-year college level. Algebra, trigonometry and analytic geometry, with emphasis on graphical methods of analysis, and with a brief introduction to calculus methods. Statistical applications will be used for illustration.

Prerequisite: High school mathematics.

### L-2. ALGEBRA FOR STATISTICS

A. GEORGE CARLTON

*Fall semester only.*

### L-2. TRIGONOMETRY AND ANALYTIC GEOMETRY

*M 6-8 beginning Feb. 1. \$12.*

A. GEORGE CARLTON

Definitions in trigonometry; identities; complex numbers; DeMoivre's theorem; trigonometric equations. The study of analytic geometry will include the line, conic sections, and some other plane curves, polar coordinates; families of curves with one or more parameters. Parametric equations of curves. Radial axis. Graphic solution of equations. Some three-dimensional geometry.

Prerequisite: College algebra.

### L-3-3. CALCULUS

DR. E. J. FINAN

*W-F 6-7:30 beginning Feb. 3. \$18.*

Second semester. Standard integral forms. Partial and total derivatives. Constrained maxima and minima in two variables; Lagrange multipliers. Interpolation. Taylor's series with one, two, and three variables. Propagation of errors. Series. Multiple integrals. Line integrals. Approximate integration; the Euler-Maclaurin formula for integration and summation. History and application stressed.

Prerequisites: College algebra, trigonometry, analytic geometry, and the first semester of calculus.

### U-3. HIGHER ALGEBRA *Fall, 1943-44. Alternate years.*

DR. E. J. FINAN

### U-2. COORDINATE GEOMETRY AND VECTORS

DR. S. B. LITTAUER

*Spring, 1943-44. Alternate years.*

### U-1. NOMOGRAMS *1943-44. Alternate years.*

LIEUT. EUGENE RASOR

### GU-2-2. STATISTICAL MECHANICS AND KINETIC THEORY OF GASES

*Tu 8-10 beginning Feb. 2. \$14.*

DR. FERDINAND G. BRICKWEDDE

Continuation of the first semester. The principles and methods of statistical mechanics. The methods will be applied to phenomena explainable on the basis of a molecular structure. Greatest emphasis will be placed upon applications to gases (kinetic theory of gases). Physical bases for the laws of thermodynamics will be developed and the statistical concepts of temperature and entropy explained. The elements of quantum statistics will be discussed and applied to problems of general interest.

Prerequisite: Differential and integral calculus, college physics, a first course in mechanics and thermodynamics, and the first semester of this course or its equivalent.

## GU-2-2. ADVANCED CALCULUS

DR. C. WINSTON

1943-44. *Alternate years.*

## G-2-2. DIFFERENTIAL EQUATIONS

1943-44. *Every three years.*

## G-2. LINEAR ALGEBRA

M. A. GIRSHICK

M 7-9 beginning Feb. 1. \$14. (*This course is a prerequisite for Multivariate Analysis.*)

Determinants. Theory of linear dependence. Linear equations, homogeneous and nonhomogeneous. Matrix algebra; calculation of the inverse matrix; application to linear equations. Linear transformations. Quadratic forms; the matrix and discriminant. Reduction of a quadratic form to a sum of squares. The characteristic equation; definite and indefinite forms. Pairs of quadratic forms, reduction to normal form. Properties of polynomials. Invariants, covariants, half-invariants, and annihilators. Canonical formation of binary cubicals and quadratics. Symmetric functions. Elementary divisors.

Prerequisite: College algebra.

## G-2-2. THEORY OF INFINITE PROCESSES

DR. C. WINSTON

W 8-10 beginning Feb. 3. \$14.

Continuation of the first semester. Infinite aggregates, convergent and divergent sequences. Theory of the real variable. Differentiation; Riemann and Lebesgue integration. Power series, expansion of functions, series with variable terms, transformation and reversion of series. Continued fractions. Infinite determinants. History and applications.

Prerequisites: Advanced calculus; higher algebra; the first semester of this course or its equivalent.

## G-2-2. THEORY OF FUNCTIONS

DR. C. WINSTON

1944-45. *Every four years.*

## G-2-2. ANALYTICAL MECHANICS

DR. RICHARD K. COOK

1943-44. *Every three years.*

## G-2-2. THERMODYNAMICS

DR. F. G. BRICKWEDDE

1944-45. *Alternate years.*

## G-3. INTERPOLATION, AND THE CALCULUS OF FINITE DIFFERENCES

DR. W. EDWARDS DEMING

Fall, 1943-44. *Every four years.*

## G-1. INTERPOLATION, APPROXIMATION, AND MECHANICAL QUADRATURE

PROFESSOR J. SHOHAT

Spring, 1943-44. *Every four years.*

## STATISTICS

### EMERGENCY TRAINING COURSES

Designed to train personnel for replacement and expansion

## G-3. OPERATION OF STATISTICAL STUDIES

HOWARD BRUNSMAN, DR. PHILIP M. HAUSER, AND STAFF

W 7-10 beginning Feb. 3. \$21.

This course is designed to help facilitate the use of existing tabulation equipment, and to teach the most effective use of hand tabulations to relieve machine shortage.

Topics of study: Processing of data prior to tabulation; different varieties of tabulating equipment available in Washington; machine specifications for tabulation designs; special attention to the Census unit tabulators; peripheral punch cards; peg board; hand sorting devices; machine controls; training and supervision of the personnel in a tabulation division; design and supervision of hand tabulations; estimating time and costs; sample verification of processing.

*Special note.* Class limited to 30 students. Preference in admission will be given to government workers who are not likely to be called into the armed services, and who are recommended by their supervisors, who must certify (i) that the intending student is professionally capable of profiting by the course; and (ii) that his agency expects to make use of the student's training, either in the agency's own tabulating unit, or in contracting work to other agencies. Registrations from intending students, not so recommended, will be accepted tentatively until February 2d, subject to the preferential registration of students who are recommended, or who registered at an earlier date.

**G-2. STATISTICAL CLINIC** MORRIS H. HANSEN, M. A. GIRSHICK, AND STAFF  
*Tu 8-10 beginning Feb. 2. \$14.*

This will be a round-table presentation of statistical problems, with suggested solutions and procedures. Registration will be accepted subject to the approval of the Chairman of the Department of Mathematics and Statistics.

Registration limited to 30.

**L-3. SURVEY OF STATISTICS** JOSEPH STEINBERG  
*Th 6:30-9:30 beginning Feb. 4. \$18.*

A non-mathematical course designed particularly to train statistical clerks in the statistical treatment of data in the fields of economics, sociology, and business. Algebra will be reviewed as required. Operations with symbols. Summarizing data by tabulation and by statistical measures. Breaking data into subseries; significance, and the reliability of statistical predictions. The Shewhart control charts. Randomness. Computations and interpretation of statistical functions such as means, median, mode, moments, correlation. Business indexes. Trend analysis and curve fitting. Graphic analysis. Lectures and supervised instruction in calculations and table making. Short cuts by the use of charts, multiplication tables, logarithms, slide rule, and other devices.

Prerequisite: High school algebra.

**N-0. REVIEW OF MATHEMATICS** EMIL SCHELL  
*Tu 6-9 beginning Feb. 2. \$18.*

For description, see page 14.

**L-2-2. ELEMENTARY STATISTICS** DR. ARCHIE BLAKE  
*Th 6-8 beginning Feb. 4. \$12.*

This course, described in the section below, may also be found useful for emergency training by those students prepared to take the second half of the course.

**REGULAR COURSES**

**SEMINARS IN SAMPLING AND STATISTICAL INFERENCE.** Meetings are held approximately monthly under the direction of Dr. W. Edwards Deming. This is not a credit course, and no fee is charged; registration, however, is required. Applications should be sent in writing to the Director. Notices regarding meetings are mailed to those who register.



## L-2. GRAPHIC METHODS FOR PRESENTING STATISTICAL DATA

R. G. HAINSWORTH

*M 6-9 beginning Feb. 1. \$12.*

Application of various classes, forms, and types of illustrations. Actual working examples in time series charts, frequency diagrams, graphic correlation charts, statistical maps, pictorial symbol charts, and other illustrative examples. Reduction, reproduction and color application to graphic mapping and charting. Lettering, short-cut methods, and standardization rules.

Prerequisite: An introductory course in statistics, or experience to satisfy the instructor.

## L-2 or 3. INTRODUCTION TO EXPERIMENTAL DESIGN

1943-44.

DR. O. A. POPE

## L-2-2. ELEMENTARY STATISTICS

DR. ARCHIE BLAKE

*Th 6-8 beginning Feb. 4. \$12.*

Second semester. Non-mathematical, designed for statistical workers who do not expect to take advanced courses but wish to become familiar with the more common statistical terms and formulas and wish to learn how to lay out the forms for machine calculations. Methods of checking calculations will be emphasized. The course will include the presentation of data and the results of calculations by tables and charts. The second semester will deal with the relation between two variables; association, correlation, and regression; some elementary aspects of sampling.

Prerequisite: High school algebra; the first semester or its equivalent.

## L-2. INTRODUCTION TO STATISTICAL ANALYSIS—1st half

*Th 8-10 beginning Feb. 4. \$12.*

DR. BENJAMIN J. TEPPING

*Also offered in the fall by Mr. Purves and Mr. Wilcox.*

The collection of economic and census data; the presentation of data in tables and graphs; different kinds of averages; measures and significances of dispersion; elementary principles of sampling; introduction to index numbers and time series; preparation of formulas for machine calculations. Use of slide rule and charts for performing calculations.

Prerequisite: Algebra.

## L-2. INTRODUCTION TO STATISTICAL ANALYSIS—2d half

*Th 6-8 beginning Feb. 4. \$12.*

C. M. PURVES AND SIDNEY W. WILCOX

*Also offered in the fall by Dr. Benjamin Tepping.*

This is a continuation of Introduction to Statistical Analysis (1st half). Problems in the relations between two or more variables. Association, correlation, and regression, leading into multiple and partial correlation. Introduction to statistical inference. Adaptation of formulas to machine correlation.

## U-1. MACHINE TABULATION

MILTON KAUFMAN

*W 7-9 beginning Feb. 3. Registration limited to 30. \$9. Given at 1111 Connecticut Ave.*

The punch card method. The functions of the principal machines. The instruction will cover the actual wiring of all types of I.B.M. tabulating equipment. The use of cards to obtain sums of squares and cross products in correlation and curve fitting will be demonstrated.

## U-1. ADVANCED STUDY OF TABULATING EQUIPMENT

*F 7-9 beginning Feb. 5. \$9. Given at 1111 Connecticut Ave.*

MILTON KAUFMAN

The solution of difficult problems in the application of tabulating equipment. The instruction will include the actual operation and wiring of the principal machines involved.

Prerequisite: Machine Tabulation.

GU-2-2. GRAPHIC CORRELATION  
1943-44. *Alternate years.*

LOUIS BEAN

G-2-2. STATISTICAL METHODS FOR RESEARCH WORKERS  
DR. WILLIAM G. MADOW AND WILLIAM HURWITZ  
W 8-10 beginning Feb. 3. *Alternate years.* \$14.

The course follows R. A. Fisher's book of the same title. Supplementary material will be introduced for comparison with other methods; also for dealing with time series, and the representative method in sampling. The treatment will be non-mathematical. Critical analysis and originality will be developed.

Prerequisite: Introduction to Statistical Analysis, 1st and 2d half; familiarity with the subject matter of the text; the first half of this course or the equivalent.

G-2 or 3. DESIGN AND ANALYSIS OF COMPLEX EXPERIMENTS  
1943-44. DR. A. E. BRANDT

GU-2-2. SELECTED STATISTICAL PROBLEMS DR. JOHN H. SMITH  
F 6-8 beginning Feb. 5. *Alternate years.* \$14.

Applications of statistical methods in selected problems, involving wage studies, index numbers, administrative control of production, sample inspection in industry, time series and correlation.

Prerequisite: Introduction to Statistical Analysis, 1st and 2d half, or equivalent experience; first half of this course or its equivalent.

G-2-2. INTERPRETATION OF STATISTICAL CALCULATIONS  
M 6-8 beginning Feb. 1. \$14. ALEXANDER STURGES

Second semester. The selection and use of statistical tests. The illustrative problems will deal with single and multiple attributes. Time series will be discussed in the light of some new methods.

Prerequisite: Introduction to Statistical Analysis, 1st and 2d half; college algebra, and analytic geometry. The first half of this course, or the equivalent.

G-2-2. STATISTICAL ANALYSIS OF ECONOMIC AND SOCIAL PROBLEMS  
MILTON FRIEDMAN  
Tu 8-10 beginning Feb. 2. \$14.

Second semester. Selected topics in the application of statistical methods to demand and cost curves, business cycles, income distribution, measurement of inflationary gaps, etc.

Prerequisite: Introduction to Statistical Analysis, 1st and 2d half; multiple correlation; first half of course or the equivalent.

G-2. PLANNING OF STATISTICAL INQUIRIES DR. PHILIP M. HAUSER  
Fall, 1943-44. *Alternate years.*

G-2. OFFICE PROCEDURES AND ESTIMATES DR. PHILIP M. HAUSER  
Spring, 1943-44. *Alternate years.*

G-2-2. POPULATION STATISTICS DR. PHILIP M. HAUSER  
1944-45. *Alternate years.*

G-3-3. STATISTICAL INFERENCE DR. W. EDWARDS DEMING  
1944-45. *Alternate years.*

G-3. QUALITY CONTROL DR. W. EDWARDS DEMING  
Fall, 1943-44. *Alternate years.*

G-3. LEAST SQUARES AND CURVE FITTING DR. W. EDWARDS DEMING  
*Spring 1943-44. Alternate years.*

G-2-2. THEORY OF SAMPLING JEROME CORNFELD AND W. D. EVANS  
*Th 6-8 beginning Feb. 4. Alternate years. \$14.*

Second semester. The planning of surveys to achieve maximum efficiency. Stratification; sampling units; sampling from finite population; double sampling; form of estimate; design of samples to minimize the error in estimating means, ratios, percentiles, distributions, regressions. Methods of evaluating the precision and bias of the results obtained.

Prerequisite: Calculus and Introduction to Statistical Analysis, 1st and 2d half; first half of this course or the equivalent.

G-3. SAMPLING IN SOCIAL AND ECONOMIC SURVEYS  
*Th 6:15-9:15 beginning Feb. 4. \$21. J. STEVENS STOCK AND LESTER R. FRANKEL*

Applications of the representative method to practical and timely problems. Fallacies of the total count. Accuracy and precision. Problems involved in the selection of a sample. The theory of random sampling. The choice of sampling unit. Sub-sampling, stratified sampling, purposive selection. The use of intra-class correlation and analysis of variance in the design of sampling techniques. Analysis of cost data. Review of important sampling procedures as used in the United States and foreign countries.

Prerequisite: Introduction to Statistical Analysis, 1st and 2d half; and experience in social surveys.

G-2-2. THEORY OF SAMPLE SURVEYS  
*1943-44. Alternate years. DR. WILLIAM G. MADOW AND WILLIAM HURWITZ*

G-2-2. MULTIVARIATE ANALYSIS M. A. GIRSHICK  
*1943-44. Alternate years.*

G-2. ANALYSIS OF VARIANCE M. A. GIRSHICK  
*Fall, 1944-45. Alternate years.*

G-2-2. THEORY AND APPLICATION OF THE CHARACTERISTIC  
FUNCTION *1944-45. Every three years. MAJOR SOLOMON KULLBACK*

G-2-2. MODERN STATISTICAL THEORIES LIEUT. JOSEPH DALY  
*1943-44. Alternate years.*

#### CORRESPONDENCE COURSES

N-0. STATISTICAL METHODS IN BIOLOGY AND AGRICULTURE  
*Work may be commenced at any time unless the class is full; registration is limited. \$15. DR. F. M. WADLEY*

This course uses Snedecor's textbook *Statistical Methods*, and follows its outline largely but not absolutely. Each of the 15 lessons consists of a discussion, a textbook assignment, questions, and problems. The reports are returned with corrections and comments. Subjects discussed include simple variation, regression and correlation, analysis of variance and covariance, chi-square, multiple and curvilinear correlation, applications to sampling and experimental design. Practical applications of methods is kept to the front. Facility in the use of arithmetic and simple algebra is necessary. Information furnished on application.

N-0. LEAST SQUARES

JACOB E. LIEBERMAN

*Work may be commenced at any time. \$20.*

A course of assignments in Deming's *Statistical Adjustment of Data*. There will be 15 lessons to be completed within a year. The reports will be returned with comments. Topics: the nature of statistical analysis, simple and complex problems in curve fitting, geodetic adjustments, adjustment of observations with both variables subject to error. Analysis of patterns, use of the t-test, chi-test, analysis of variance. Adjustment of frequencies in sample surveys. Examples and exercises in situations commonly met in government research and industrial development.

*Offered Cooperatively by American University*

GU-3. LABOR STATISTICS—A QUANTITATIVE APPROACH TO  
LABOR ECONOMICS

DR. JACOB PERLMAN

*Th 8:15-10:25 beginning Feb. 4. Audit \$24. Credit \$30.*

*See A.U. catalog, Stat. 464.*

GU-3. STATISTICAL FIELD STUDIES

HOWARD B. MYERS

*Lecture: M 8:15-9:30*

*Laboratory: Tu 6-8 beginning Feb. 1. Audit \$24. Credit \$30.*



# DEPARTMENT OF PHYSICAL SCIENCES

## DEPARTMENTAL COMMITTEE

CHARLES E. KELLOGG, Ph.D., *Chief, Division of Soil Survey, Bureau of Plant Industry; Departmental Educational Counselor on Physical Sciences other than Chemistry (Chairman)*

ARNOLD K. BALLS, Ph.D., *Head Chemist, Bureau of Agricultural Chemistry and Engineering; Departmental Educational Counselor on Chemistry*

IRVINE T. HAIG, Ph.D., *Chief, Division of Forest Management Research, Forest Service*

HAZEL K. STIEBELING, Ph.D., *Senior Food Economist, Bureau of Home Economics; Departmental Educational Counselor on Home Economics*

HARRY WEXLER, D.Sc., *Chief, Research and Training Section, Weather Bureau, Department of Commerce*

NOTE: Courses preceded by a symbol and two figures (e.g. G-2-2 or L-3-3) are full-year courses now beginning the second half. Unless otherwise stated, new students will not be admitted to such classes unless they have had the first half or its equivalent or the consent of the instructor.

### U-2-2. HISTORY OF SCIENCE

DR. PAUL R. HEYL

*See description in Department of Biological Sciences.*

### L-3. NAVIGATION

JOHN T. LOKERSON

*F 6:30-9:30 beginning Feb. 5. \$18. (Materials and books will cost about \$6.) Limited to 20.*

This course is limited to the essential principles of practical navigation, "off soundings" (exclusive of inland and coastal piloting, which is covered in Piloting, described below).

Dead Reckoning: This will include the definitions, charts, plotting, records, allowance of errors of the magnetic and gyro compasses, ocean currents, and plane, mid-latitude, Mercator, and Great Circle sailings.

Celestial Navigation: This will include the fundamental definitions and principles of astronomy underlying the navigation of ships and aircraft; the usage of the sextant and chronometer, time and the Nautical Almanac, corrections of observed altitudes, the determination of latitude and of position at sea by lines of position computed by H.O. 211 using G.H.A., and identification of unknown navigational stars.

Prerequisite: High-school trigonometry and logarithms.

### L-3. PILOTING

DR. RAYMOND M. HANN

*F 7:30-10:30 beginning Feb. 5. \$18. (Materials and books will cost about \$10.) Limited to 15.*

This course will cover the essential principles involved in inland and coastal piloting. Practical problems and chart work will supplement discussion. The subjects to be covered will include the mariner's compass and its errors; the use of Napier diagrams; tides; currents; speed curves and current diagrams; aids to navigation; determination of position by various methods including bearings on one or more objects, cross bearings, and vertical and horizontal sextant angles; fixing position by the use of angles and bearings. Some illustrations of the application of these principles to aerial navigation will conclude the course.

## CHEMISTRY

N-0-0. GENERAL (INORGANIC) CHEMISTRY DR. L. A. GOLDBLATT  
*F 6-8 beginning Feb. 5. \$12.*

An introductory survey course designed for students not specializing in chemistry but who desire a general knowledge of the subject. The aim of the course is to give the student a better comprehension of the chemical aspects of our environment. The course will consist of a series of lectures covering the concepts, principles, facts, and applications of general chemistry. Some organic chemistry will be included. No individual laboratory work.

L-2-2. INTRODUCTION TO ORGANIC CHEMISTRY DR. E. P. CLARK  
*Fall, 1943-44.*

U-2-2. ADVANCED ORGANIC CHEMISTRY C. VERNE BOWEN  
*Tu 6-8 beginning Feb. 2. \$12.*

In this course fundamental reactions will be reviewed and elaborated. Newer developments in aliphatic and aromatic chemistry will be presented and recent progress in the chemistry of sterols and vitamins will be given.

Prerequisite: One year general chemistry; one year organic.

U-2-2. PHYSICAL CHEMISTRY DR. WALTER J. HAMER  
*Tu 6-8 beginning Feb. 2. \$12.*

Classification of matter; atomic and kinetic theories; atomic and molecular structure; solutions; the phase rule; chemical kinetics; thermochemistry and thermodynamics; flame and explosive temperatures; photochemistry; radioactive chemical changes; electrochemistry; conduction by electrolytes.

Prerequisite: One year general chemistry.

GU-2-2. PHYSIOLOGICAL CHEMISTRY DR. HERBERT O. CALVERY  
*W 6-8 beginning Feb. 3. \$14.*

A lecture course on the principles of biochemistry. The course will deal with the chemistry of the proteins, fats, and carbohydrates; the general chemical composition of animal tissues, e.g., muscle, nerve, milk, and blood; a brief discussion of the enzymes of the gastro-intestinal tract; the digestion and absorption of the principal foodstuffs; metabolism of the proteins, fats, and carbohydrates; mineral metabolism; the chemical constituents of the urine; and finally a general discussion of the chemistry and physiology of the vitamins and hormones will conclude the course.

Prerequisites: One year general chemistry; one year organic.

G-2-2. ELECTROCHEMISTRY DR. WALTER J. HAMER  
*F 6-8 beginning Feb. 5. \$14.*

A lecture course designed to present the fundamentals of electrochemistry. This course will deal with the conduction by electrolytes, transference numbers, the mechanism of galvanic cells, electrode potentials, potentiometric titrations, conductometric titrations, the polarograph, diffusion currents, electrokinetic phenomena including electrophoresis and electro-osmosis, ionization constants, pH or hydrogen ion activity, and passivity and overvoltage of electrodes. The factors involved in electroplating, electrodialysis, and electropolishing will be briefly studied.

Prerequisite: One year general chemistry. Calculus helpful but not required.

GLASS BLOWING (See MECHANICAL ARTS).

## GEOGRAPHY AND GEOLOGY

### GU-3. ECONOMIC GEOGRAPHY

CLAYTON E. WHIPPLE

*Fall, 1943-44.*

### G-2. OPTICAL MINERALOGY

DR. EARL INGERSON

*Fall, 1943-44 if war restrictions on laboratories will permit.*

### G-2. MICROSCOPICAL PETROGRAPHY

DR. EARL INGERSON

*Spring, 1943-44 if war restrictions on laboratories will permit.*

## METALLURGY

### U-2. PRINCIPLES OF PHYSICAL METALLURGY

*Fall, 1943-44.*

### GU-2. PRODUCTION METALLURGY

*Fall, 1943-44.*

### GU-2. ADVANCED PHYSICAL METALLURGY

DR. BLAKE M. LORING

*W 8-10 beginning Feb. 3. \$14.*

Some basic concepts of the physics of metals will be discussed in order to develop a better understanding of the common mechanical tests and manufacturing processes. The topics will include the following: definition of a metal; introduction to the crystalline nature of matter; classification of metallic elements according to crystalline structure; relationship between crystalline structure and physical properties; the equilibrium diagram and its relation to physical properties and crystalline structure; introduction to X-ray metallography with calculations from diffraction patterns of metals (illustrated); X-ray evidence of cold working and recrystallization; interval stresses in metals; plastic deformation; theory of metal hardening, ferrous and non-ferrous; advanced physical testing of metals covering fatigue, creep, and damping capacity. The class will be permitted to select for discussion manufacturing processes of most general interest. Forging and rolling will be included.

### G-2. ENGINEERING ALLOYS

DR. BLAKE M. LORING

*M 8-10 beginning Feb. 1. \$14.*

A practical course concerned with the manufacture, heat treatment, physical testing, and engineering usage of plain carbon, alloy, and special steels, brasses, bronzes and the light alloys of aluminum and magnesium. The most recent trends in specifications of alloy properties will be included. Alloys for aircraft will occupy considerable attention.

## METEOROLOGY

With the growing importance of aircraft operations in military and civilian activities, meteorology is undergoing a rapid expansion. Before proceeding on his flight, the pilot must consult the meteorologist regarding upper air winds, cloud ceiling, threat of icing and thunderstorms, etc., along his route. Opportunities for employment of meteorologists have expanded greatly recently and it is expected that this tendency will continue in the future.



The course in Elementary Meteorology is intended for persons who desire a general outlook in meteorology and who are not interested in becoming professional meteorologists. The remaining courses outlined below are intended to give a fundamental and comprehensive meteorological background for persons interested in pursuing a career in meteorology. It is suggested that these courses be taken in the following order:

Physical and Synoptic Meteorology  
Comparative Meteorology and Oceanography  
Weather Analysis and Forecasting  
Dynamic Meteorology

Elementary Statistical Analysis for Meteorologists will be found useful to professional meteorologists.

A course in Introductory Physics is offered for those who need it as a foundation for study in meteorology. (See PHYSICS.)

## U-2. ELEMENTARY METEOROLOGY

GARRETT DE MOTS

SECTION I—*M 6-8 beginning Feb. 1. \$12.*

SECTION II—*W 6-8 beginning Feb. 3. \$12.*

INDICATE SECTION WHEN REGISTERING.

This course is intended for persons who desire a general outlook in meteorology. It is designed to meet the needs of persons who do not expect to become professionals but to whom a basic knowledge of meteorology is essential because of their daily relations with meteorology and meteorologists. The topics to be discussed include: history of meteorology, the sun and the seasons, cloud observations and interpretation, instruments and measurement of weather elements, structure of the atmosphere, general circulation and secondary circulations, description of the charts and diagrams used in preparing the forecast.

## U-2. PHYSICAL AND SYNOPTIC METEOROLOGY—1st half

*M 6-8 beginning Feb. 1. \$12.*

ALEXANDER SHANDS

This is the first half of a two-semester course designed as a primary course for those interested in a career in meteorology. Among the topics covered will be: composition and structure of the atmosphere, adiabatic processes, general circulation, air masses and fronts, cyclones and anticyclones, fog, hurricanes, thunderstorms, weather forecasting.

Prerequisite: High school diploma with creditable grades in mathematics and physics.

## U-2. PHYSICAL AND SYNOPTIC METEOROLOGY—2d half.

*Tu 6-8 beginning Feb. 2. \$12.*

ALEXANDER SHANDS

Second half of the full-year course described above.

## U-2. COMPARATIVE METEOROLOGY AND OCEANOGRAPHY

WOODROW C. JACOBS AND DAVID I. BLUMENSTOCK

*W 6-8 beginning Feb. 3. \$12.*

A one-semester course designed to present the fundamentals of oceanography and to utilize these fundamentals, together with basic work in meteorology, in a study of world weather and climate. The aeronautical aspects of climatology are

stressed particularly. Topics to be discussed include the physical properties of sea water, radiation and heat balance of the earth, the general and special circulations of the atmosphere and oceans, evaporation and the hydrologic cycle, interactions between sea and atmosphere, air mass climatology, bases for a dynamic climatology, microclimatology, analysis and presentation of meteorologic data and discussions of the regional and time variations in the structure of the atmosphere, winds, salinity, temperature, fog, clouds, visibility and precipitation.

Prerequisite: Basic course in elementary meteorology or consent of instructor.

#### GU-2-2. ELEMENTARY STATISTICAL ANALYSIS FOR METEOROLOGISTS

HERBERT C. S. THOM

*W 6-8 beginning Feb. 3. \$14.*

This two-semester course is designed especially for meteorologists and hydrologists. Emphasis will be placed on tests of significance and the exact understanding of definitions and terms. Some emphasis will also be given to the applications of statistical analysis and the limitations involved. Problems will, whenever possible, apply to the fields of meteorology and hydrology. Numerous references to the literature will be furnished for those who desire more elaborate mathematical discussions.

Prerequisite: College algebra or equivalent.

#### GU-3-3. WEATHER ANALYSIS AND FORECASTING

A. K. SHOWALTER AND C. H. PIERCE

*Tu 6-9 and Th 6-7 or Th 6-7 and F 6-9, to be arranged at the first class meeting, Feb. 2. \$21 plus \$3 laboratory fee.*

Lectures and laboratory. This two-semester course is the natural sequel to Physical and Synoptic Meteorology and will provide practical experience in the analysis of various weather charts of sea level and the upper air. Considerable practice will be given in preparing weather forecasts from various sea-level and upper-air charts and also from local surface and upper-air data alone.

Prerequisite: Physical and Synoptic Meteorology or permission of the instructor.

#### G-3-3. DYNAMIC METEOROLOGY

DR. MARTIN A. GARSTENS

*W-F 6-7:30 beginning Feb. 3. \$21.*

This two-semester course is designed especially for students with considerable mathematical and meteorological background who wish to understand the working of the atmosphere and the physical background of modern methods used in weather analysis, forecasting, and research. Among the topics treated will be the following: thermodynamics of the atmosphere, hydrodynamics of the atmosphere, atmospheric turbulence, the general circulation, and applications to forecasting.

Prerequisite: Physical and Synoptic Meteorology or equivalent, calculus, or consent of instructor.

### PHYSICS

#### U-3-3. INTRODUCTORY PHYSICS

DR. RALPH B. KENNARD

*T-F 6:30-8:30 beginning Feb. 2. \$18.*

This year-course begins this semester. By meeting more often than usual, it will enable the student to complete a full-year course by early summer.

The course is intended for those students who have had no previous training in physics or who wish to review the elements of the subject. The first semester will deal with the topics of mechanics, sound, and heat; the second semester with electricity, light, and modern physics. Special emphasis will be given to the interests of students intending to study meteorology.

Prerequisite: Creditable grades in high school mathematics.

- G-2-2. ANALYTICAL MECHANICS 1944-45. DR. RICHARD K. COOK
- GU-2-2. STATISTICAL MECHANICS AND KINETIC THEORY  
OF GASES DR. FERDINAND G. BRICKWEDDE  
(See MATHEMATICS for course description.)
- GU-2-2. THERMODYNAMICS DR. FERDINAND G. BRICKWEDDE  
1943-44.

## SOIL SCIENCE

- GU-3. SOILS: THEIR MORPHOLOGY, GENESIS, AND  
CLASSIFICATION DR. CHARLES E. KELLOGG  
*Tu-Th 6-7:30 beginning Feb. 2. \$21.*

The nature of soils and the broad principles governing their behavior are first discussed, followed by consideration of soil morphology, formation, and classification. Particular attention is given to the characteristics of the great soil groups and their genesis in relationship to the physical and biological forces of the environment. The soil geography of the United States is dealt with broadly, but some examples from other parts of the world are used. Throughout the course, the relationships of soil characteristics to agricultural development, soil use and conservation, and patterns of human occupancy are emphasized.

Prerequisites: Freshman chemistry or its equivalent. Previous or collateral reading in plant physiology, geology, geography, and logic would be helpful, but not essential.

- U-2. SOIL CONSERVATION *Fall, 1943-44.* DR. J. GORDON STEELE
- U-3. SOIL FERTILITY *Fall, 1943-44.* J. K. ABLEITER

# DEPARTMENT OF ENGINEERING AND MECHANICAL ARTS

## DEPARTMENTAL COMMITTEE

FRANCIS J. SETTE, M.S., *Executive Officer, Office of Program Vice Chairman, War Production Board; former Deputy Administrator, Rural Electrification Administration*

REGINALD G. HAINSWORTH, M.A., *Head, Graphic Section, Bureau of Agricultural Economics*

ROBERT W. TRULLINGER, B.S. in C.E., *Assistant Chief, Office of Experiment Stations*

MARSHALL S. WRIGHT, *Principal Cartographic Engineer, Office of the Secretary; Member Technical Advisory Board; Departmental Educational Counselor on Engineering and Mechanical Arts*

FAYETTE S. WARNER, Ph.D., *Senior Engineer, Federal Power Commission*

NOTE: Courses preceded by a symbol and two figures (e.g., G-2-2 or L-3-3) are full-year courses now beginning the second half. Unless otherwise stated, new students will not be admitted to such classes unless they have had the first half or its equivalent or the consent of the instructor.

## ENGINEERING

### U-2-2. NAVAL ARCHITECTURE\*

CHARLES L. WRIGHT, JR.

Tu 6-8 beginning Feb. 2. \$12.

Second semester: Trochoidal wave theory; action of ships in waves; hull form and resistance; power; propulsion; steering.

### U-2-2. SHIP CONSTRUCTION\*

CHARLES L. WRIGHT, JR.

Th 6-8 beginning Feb. 4. \$12.

Second semester: Arrangement of machinery and fittings; piping, wiring, and ventilation; load line regulations, tonnage measurement, trial trips, dry docks.

### U-2. FUNDAMENTAL AERODYNAMICS Fall, 1943-44 W. E. KONECZNY

### U-2. APPLIED AERODYNAMICS

W. E. KONECZNY

M 6-8 beginning Feb. 8. \$12.

This is a continuation of Fundamental Aerodynamics offered during the fall semester and consists of airplane performance and special problems. Lectures, discussions, and problems.

Prerequisite: Fundamental Aerodynamics or equivalent.

### U-2. AIRPLANE STRESS ANALYSIS

W. E. KONECZNY

Tu 6-8 beginning Feb. 9. \$12.

This course will acquaint the student with the various parts of airplane structures and the means used for their analysis. A review of basic strength of materials, applied loads on an airplane, wings, fuselage, tail surfaces, landing gear, controls, fittings, standard methods of analysis, and static tests, lectures, discussions, and problems.

Prerequisite: Strength of materials.

\* NOTE: Because of the interrelation of Naval Architecture and Ship Construction, it is suggested that they be taken together.



## U-2. AIRCRAFT POWER PLANTS

ELMER J. BRIGGS, *Chairman*

*Tu 6-8 beginning Feb. 2. \$12.*

This course is offered through the cooperation and participation of a group of specialists from the Aircraft Engineering Division of the Civil Aeronautics Administration. The following persons will lecture on topics in which they have specialized:

1. Elmer J. Briggs, *Chief, Engine Unit*
2. Stephen H. Rolle, *Chief, Power Plant Section*
3. E. Forrest Critchlow, *Chief, Vibration Control Unit*
4. Kenneth S. Cullom, *Fuels and Lubricants Specialist*
5. William A. Lusby, *Engine Specialist*
6. John C. Morse, *Chief, Propeller Unit*
7. David L. Posner, *Propeller Specialist*
8. E. J. Rudder, *Vibration Specialist*

The course will cover the following:

*Engines:* Internal combustion engine principles; modern aircraft engines, general design features; carburetion, ignition, lubrication, cooling, fuels and lubricants, engine performance and testing; typical engine failures.

*Propellers:* Principles of propeller design and construction; modern aircraft propellers of wood, metal and composite construction; fixed and adjustable pitch, constant speed and feathering types; propeller performance and testing; typical propeller failures.

*Vibration:* General treatment of vibration theory; vibration problems related to aircraft power plant installations; engine and propeller vibration stress surveys; vibration survey of propeller-engine-airplane combination; typical power plant vibration failures.

*Power Plant Installation:* General treatment of engine and propeller installation; typical installation failures.

*Prerequisites:* Preferably some background in internal combustion engines, mathematics, and mechanics.

## GU-3-3. WATER POWER ENGINEERING (See UTILITY ADMINISTRATION)

## G-2-2. ELECTRIC UTILITY ENGINEERING (See UTILITY ADMINISTRATION)

## U-2. ADVANCED PHYSICAL METALLURGY (See PHYSICAL SCIENCES)

## G-2. ENGINEERING ALLOYS (See PHYSICAL SCIENCES)

## GRAPHIC PRESENTATION

### L-2-2. ARCHITECTURAL DRAWING

GEORGE L. EDICK

*Tu-Th 6-8 beginning Feb. 2. Special fee \$20.*

Geometrical problems, orthographic projections, lettering, architectural symbols. Residence design, working drawings, details of construction, studies of modern methods of framing, and use of building materials.

### L-2-2. MECHANICAL DRAWING

GEORGE L. EDICK

*Tu-Th 6-8 beginning Feb. 2. Special fee \$20.*

Geometrical problems, orthographic projections, intersections and developments, lettering, and study of material symbols. Studies in machine shop practice, assembly and detail drawings, scale detail drawings from measured sketches by the student.

## L-2. PENCIL SKETCHING AND FREEHAND DRAWING

*M-W 6-8 beginning Feb. 1. Special fee \$15.*

WALTER G. CADMUS, JR.

A study of shade, shadows, and perspective. An intensive study of theory, harmony of lines, and pictorial and outdoor sketching. Each student will receive individual criticism. Open to both beginners and advanced students. Sketching only, two hours a week, Wed. (1 hr. cr.) from 6 to 8; fee \$10.

## L-2. GRAPHIC METHODS FOR PRESENTING STATISTICAL DATA (See STATISTICS)

## MECHANICAL ARTS

### L-2-2. TECHNIQUE OF SHOP MANAGEMENT

SAMUEL L. HOLSTON

*Fall, 1943-44.*

### L-2-2. EFFECTIVE FOREMANSHIP

SAMUEL L. HOLSTON

*M 6-8 beginning Feb. 8. \$12.*

Second Semester: A course covering the special problems of the foreman-manager and supervisor, with particular reference to those who supervise craftsmen and machine operators. A practical treatment of such foremanship problems, including human relations and improved technique in managerial and supervisory responsibilities.

Prerequisite: Experience as supervisor or foreman, or consent of instructor.

### 2-2. GLASS BLOWING

LELAND B. CLARK

*M-W 6-7:30 beginning Feb. 1. Special fee \$18 including materials.*

This is a laboratory course for technicians. Simple manipulation of joining, bending, and shaping will be carried through to the production of useful apparatus. Metal in glass and glass to metal seals of all types will be made. During the first semester the soft glasses were utilized for practice; during the second semester the related glasses will be used. Ample opportunity for advanced work will be given those who show themselves particularly adapted to the work.

## L-3. TEXTILE DESIGN AND FABRIC DEVELOPMENT

*M-W 8-9:30 beginning Feb. 1. \$18.*

STANLEY A. SOKOLOFF

The technical planning of woven fabrics and the preparation of specifications for their manufacture. This course is of particular interest to coordinators of industrial activities, engineers, research workers, and procurement officers. It deals with the design and development of cloths to meet specific conditions of use. Possibilities are studied for modification of currently established fabrics to avoid critical situations in raw materials and industrial facilities. Subjects covered include: weave designing; yarn and fabric construction; cloth analysis; cost calculations; types of looms; mill specifications and drafts. Fabrics of many types, from heavy ducks to Jacquard brocades, are discussed. Students will work with actual samples.

Prerequisite: Introduction to Textile Technology or technical background in textiles.

## L-3. INTRODUCTION TO TEXTILE TECHNOLOGY

*Fall, 1943-44.*

STANLEY A. SOKOLOFF

## PHOTOGRAPHY

### U-2. BASIC PHOTOGRAPHY

CARL H. HANSON AND SPECIALISTS

*Fall, 1943-44.*

## SURVEYING AND MAPPING

### L-4-4. SURVEYING

E. J. SCHLATTER

*Tu-Th 6-8 beginning Feb. 2. With equivalent of 30 hours of drafting-room and field work as weather permits. \$24.*

Second semester: Advanced classroom and field study of the methods of surveying applicable to topographic surveys, control for aerial photography, highway location, elementary geodetic surveys including triangulation, and cadastral surveys. The course also includes instruction in plotting from field notes and in the construction of polyconic and Lambert map projections.

Prerequisite: Trigonometry.

### U-3-3. AERIAL PHOTOGRAMMETRY

REYNOLD E. ASK

*M-W 6-8 beginning Feb. 1. Lecture, 2 hours a week; computation and drafting-room period, 2 hours a week. \$18.*

Second semester: Theory of stereoscopic plotting instruments including the stereocomparator, multiplex, aero-cartograph, stereo-planigraph, and the Brock process. Mapping from oblique photographs.

Prerequisite: First-semester Surveying and trigonometry.



## UTILITY ADMINISTRATION AND REGULATION

**NOTE:** *These courses are offered to meet the special needs of a large group of Federal employees. For their convenience the classes will be held in buildings of the Federal Power Commission, 18th and Pennsylvania Ave., N.W.*

*Information about the technical content of the courses may be obtained from Dr. Fayette S. Warner. Call Branch 274, Federal Power Commission.*

### GU-2. PUBLIC POWER

JUDSON KING, DR. H. W. BLALOCK

*Tu 7:30-9:30 beginning Feb. 2. \$14.*

AND DR. C. A. DUVAL

General review of the development and operations of the publicly owned electric utilities in America. Both historical and statistical analyses of the numerous problems of the publicly owned utilities, involving organization, financing, operations, rates, sales, costs, legal or political obstacles, and "yardsticks." The development and operations of the following publicly owned electric utilities: municipal, district, cooperative, State, and Federal.

### GU-3-3. WATER POWER ENGINEERING

KENNETH W. ROSS

*M-W 6-7:30 beginning Feb. 1. (18 weeks) \$21.*

This course will be informative in the fundamentals of engineering and their application to the planning and construction of dams, reservoirs, and power plants in the development of river basins in the United States. Included will be a study of river flow, regulation by reservoirs, water power estimates, hydraulic turbines and plant arrangement. Important rivers and projects will be used as illustrative examples in the practical application of fundamental principles and procedures.

Prerequisite for credit: Mathematics and physics.

### G-2-2. ELECTRIC UTILITY ENGINEERING

J. M. MORGAN AND

*Tu 7:30-9:30 beginning Feb. 2. \$14*

DR. J. A. JESSEL

The fundamentals of electric utility engineering and their practical application to generating, transmitting, and distributing electric energy by electric utilities. Designed for engineers, engineering aids, lawyers, accountants and others who desire a broader understanding of the basic principles of electric utility engineering as applied to operating electric utilities. The subjects covered are: A general description of production, transmission, and distribution plants of electric utility, including each of the units of the property and an explanation of its functions; lectures and case studies in design and operation of electric generating stations, transmission lines and substations, and distribution substations, feeders, transformers, and services; discussions of practices followed by electric utilities in serving different classes of customers.

### GU-2. ELECTRIC AND GAS UTILITY RATES

H. ZINDER AND

*Fall, 1943-44.*

W. E. CAINE

### U-3-3. ORIGINAL COST ACCOUNTING FOR ELECTRIC AND GAS UTILITIES

K. L. SMITH AND R. C. RAINWATER

*Fall, 1943-44.*

### GU-3-3. PUBLIC UTILITY EVIDENCE

LAMBERT McALLISTER AND

*Fall, 1943-44.*

WILLARD GATCHELL

### GU-2. MANUFACTURING INDUSTRIES

DR. FAYETTE S. WARNER AND

*Fall, 1943-44.*

S. H. THOMPSON

# DEPARTMENT OF BIOLOGICAL SCIENCES

## DEPARTMENTAL COMMITTEE

HOWARD P. BARSS, M.S., *Principal Botanist and Experiment Station Administrator, Office of Experiment Stations (Chairman)*

F. C. BISHOPP, Ph.D., *Assistant Chief, Bureau of Entomology and Plant Quarantine; Departmental Educational Counselor on Entomology*

M. A. MCCALL, Ph.D., *Assistant Chief, Bureau of Plant Industry*

H. L. SHANTZ, Ph.D., *Chief, Division of Wildlife Management, Forest Service; Departmental Educational Counselor on Plant Sciences*

BENJAMIN SCHWARTZ, Ph.D., *Chief, Zoological Division, Bureau of Animal Industry; Departmental Educational Counselor on Animal Sciences*

NOTE: Courses preceded by a symbol and two figures (e.g., G-2-2 or L-3-3) are full-year courses now beginning the second half. Unless otherwise stated, new students will not be admitted to such classes unless they have had the first half or its equivalent or the consent of the instructor.

### U-2-2. HISTORY OF SCIENCE

DR. PAUL R. HEYL

W 6-8 beginning Feb. 3. \$12.

Continuing the review of the development of the principal branches of science, the second semester will emphasize the development of chemistry, geology, and biology, showing parallel development and interrelationships. Emphasis will be placed on the life-work of leading figures in the development of these sciences. References will be made to related writings, particularly those of the early workers.

The subject will be treated from the point of view that science is an organized and correlated body of knowledge, as distinguished from an uncorrelated accumulation of facts. In this sense, the history of science may be regarded as the history of the development of human thought.

New students admitted.

### L-2. FOOD, NUTRITION, AND HEALTH

ELIZABETH C. CALLISON

Th 6-8 beginning Feb. 4. \$12.

This course aims to present the fundamental information necessary for an intelligent understanding of the foods we eat, the uses we make of them, and the role of diet in the conservation of health. It is highly desirable that the student have had at least one course in either chemistry, physics, or biology.

The topics discussed will be (1) the body mechanism, (2) the proximate principles and their functions in the body, (3) digestion of proteins, fats, and carbohydrates, (4) energy metabolism, (5) minerals and their functions, (6) the vitamins and their function, (7) foods as sources of nutritional elements, the processing of foods and effects on food value, government protection of foods, (8) requirements of adequate human nutrition; planning of diets, including some of the common special diets which are frequently prescribed by the physician and must be prepared in the home.

### L-2-2. SYSTEMATIC BOTANY

DR. S. F. BLAKE

M 6-8 beginning Feb. 1. \$12.

The second semester will be devoted to the identification of wild plants of this region by the use of a manual. One or two short field trips will be held. This course is intended to give those with no previous experience in systematic botany an acquaintance with the elementary principles of the subject sufficient to enable them to use the ordinary manuals to advantage.

## U-2. SOME FUNDAMENTALS OF LANDSCAPE DESIGN

*F 6-8 beginning Feb. 5. \$12.*

F. L. MULFORD

Principles of landscape design as applied to home grounds, large and small; school and institution grounds; and public parks. Use of plant material in connection with such plans and preparation of plans.

## U-3. LAND MANAGEMENT ECOLOGY

DR. EDWARD H. GRAHAM

*Fall, 1943-44.*

## GU-3. COMPARATIVE AGRICULTURE

CLAYTON E. WHIPPLE

*Tu-Th 6-7:30 beginning Feb. 2. \$21.*

A survey of countries of strategic agricultural importance, approached in terms of climate, topography, soils, types of farming regions, crop and animal enterprises, etc.

For more complete description, see same course under AGRICULTURAL ECONOMICS.

## GU-2-2. MEDICAL AND VETERINARY ENTOMOLOGY

*Tu 6-8 beginning Feb. 2. \$14.*

DR. F. C. BISHOPP

A timely general course in medical entomology with emphasis on the practical aspects of this important field. The biology, habits, and relation to disease of insects, spiders, mites, and ticks, will be discussed. The way in which these arthropods affect man and animals as intermediate hosts, or carriers of disease-producing organisms, will be given attention and special consideration given to methods of control. The adaptation of known control procedures to present-day defense problems will be considered. Features of the course will include lectures by some of the outstanding specialists in this general field and round-table discussions of practical problems.

Prerequisite: Basic training in biology or consent of instructor.

## GU-2. PLANT PHYSIOLOGY 1943-44.

DR. GLENN A. GREATHOUSE

## GU-2. DISEASES OF WILDLIFE 1943-44.

DR. J. E. SHILLINGER

## DEPARTMENT OF LANGUAGE AIDS

### DEPARTMENTAL COMMITTEE

HARRY B. HUMPHREY, Ph.D., *Principal Pathologist, Bureau of Plant Industry, and Editor, Phytopathology (Chairman)*

GOVE HAMBIDGE, A.B., *Author; Research Coordinator, Agricultural Research Administration*

M. C. MERRILL, Ph.D., *Chief, Division of Publications, Office of Information*

MADALINE W. NICHOLS, Ph.D., *Information Specialist, Office of Foreign Agricultural Relations, and Editor, Agriculture in the Americas*

RALPH R. SHAW, M.S., *Department Librarian and Departmental Educational Counselor on Language Aids*

### THE IMPORTANCE OF LANGUAGE AIDS

It was Montrond who said language was given to man to conceal or disguise his thoughts. However true this may be, we know also that language, no matter how primitive, is the vehicle by which man conveys his thought and feeling. Of all his creations quite the most astonishing, the most essential to his success and happiness is language.

In selecting for the Department of Language Aids the courses in English here described, much thought and care have been given those branches of our language that are basic and necessary to its intelligent use and finesse in expression. The major objective is the development of facility of expression, both oral and written, so that thoughts and feelings can be presented clearly, interestingly, and convincingly. Among students preparing for technical careers and among busy people employed on the basis of their technical competence, there is an inevitable tendency to concentrate on subject-matter specialties, to the great neglect—if not exclusion—of the auxiliary subjects which can effectively implement such specialties. It is common knowledge in the government service that nothing so much retards the progress of many young technicians, scientists, and other professional personnel as their inability to incorporate the results of their thinking and of their research in effective, concise, lucid English, written or oral. Technical knowledge is of no value unless it can be communicated to others. There are indeed few persons who cannot greatly benefit from the further sharpening of their tools of communication.

From the many important foreign languages only those are here offered that experience has shown to be in most urgent demand or that seem to promise some special value to those engaged in research or in fields of international service. It is the aim of those responsible for these courses to conduct them so as to develop in their students a ready and intelligent use of the language. The person who is seeking



the maximum practical value from a foreign language should learn not only to translate it but to think in it well enough for translation to be unnecessary. If possible, he should acquire a spoken command of at least one language other than his own.

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## ENGLISH

### L-2-2. COMPOSITION AND RHETORIC

DR. SUSAN E. HARMAN

Th 6-8 beginning Feb. 4. \$12.

Equivalent of first-quarter freshman English. An introductory course in writing and English usage, designed especially for those who need a course preparatory to more advanced English courses. Special attention will be given to the fundamental principles and mechanics of good writing—grammar, punctuation, spelling, etc.

Open to students who have had the first semester of this course or Descriptive English Grammar.

### U-2. DESCRIPTIVE ENGLISH GRAMMAR

DR. SUSAN E. HARMAN

M 6-8 beginning Feb. 1. \$12.

A course in grammatical principles, stressing sentence structure and correct English form. Students are required to analyze sentences by diagram and to correct examples of bad English.

### N-0. THE CLASSICS (See SPECIAL COURSES)

## SPEECH

### L-2. FUNDAMENTALS OF SPEECH

HESTER BEALL PROVENSEN

Fall, 1943-44.

### L-2. EFFECTIVE SPEAKING

HESTER BEALL PROVENSEN

Tu 6-8 beginning Feb. 2. \$12.

Clear, forceful, and convincing expression is the result of directed practice in a variety of speech situations. Hence, this course will concentrate on preparation and practice in public speaking and the speech arts. Speeches for special occasions, description, exposition, radio speaking, story telling, and training in the art of conversation. The emphasis is on practice; knowledge of speech fundamentals is presupposed.

### L-2. VOICE AND REMEDIAL SPEECH

RICHARD R. HUTCHESON

Tu 6-8 beginning Feb. 2. Special fee \$15.

Study and intensive drills in voice production, flexibility, range, articulation and enunciation. Training and practice are designed to improve vocal conditions for all speech purposes and to remedy minor speech difficulties. In order that students may receive more individual attention, registration is limited to twenty.

### N-0. PERSONAL DEVELOPMENT (See SPECIAL COURSES)



## WRITING AND EDITING

### U-2. CREATIVE WRITING

DEWITT C. WING

*Th 6-8 beginning Feb. 4. \$12.*

This course is designed primarily to develop the student's inclinations in literary work through guidance, example, and practice. Emphasis is laid on facility of expression, skill in the use of words, and familiarity with the current media for reaching the reading public. The course presupposes a fundamental knowledge of composition.

### U-3. EDITING

DR. M. C. MERRILL AND SPECIALISTS

*M-W 6-7:30 beginning Feb. 1. \$18. Limited to 40 students.*

This course is intended primarily for those seeking information on the editorial technique involved in handling manuscripts after they leave the author's hands and until they are issued in printed form. Discussion of the fundamental principles of editing, including the organization or rearrangement of material for effective presentation; rhetorical style in relation to subject matter; sentence structure and effective use of English; paragraphing and leads; consideration governing titles, tables of contents, headings, footnotes, illustrations, literature citations and bibliographies, and statistical checking; the principles of table formation and arrangement; typography and the relation of type to subject matter; and the fundamentals of indexing and proofreading. Practical examples of editorial work will be discussed in class. Opportunity for some familiarity with the style manual of the Government Printing Office will be provided. Collateral reading will be indicated. Those desiring credit for the course will be required to pass a written examination at the end of the semester.

### U-2. WRITING FOR OFFICIAL PURPOSES

ARTHUR P. CHEW

*F 6-8 beginning Feb. 5. \$12.*

How to present facts and ideas in official writing is the problem of this course. Every type of writing has its own requirements. Official writing, though like other writing in most respects, has important peculiarities. For example, it must respect the boundaries of science, of governmental organization, and of official policy. Frequently the attempt to do so makes it wordy, wooden, and lifeless. The course, which presupposes some writing experience, will consider ways of making government writings clear, vigorous, and readable in spite of the necessary rules and restrictions. It will show where the limitations do not apply, as well as where they do, so that all possible freedom may be developed. One major writing project will be required to earn credit for the course.

## CHINESE

### L-4. CHINESE

DR. I-MIEN TSIANG

*Tu-Th 6-8 beginning Feb. 2. \$24.*

Instruction in the fundamentals of the Chinese language (Mandarin), elements of grammar, reading and writing of Chinese characters, and simple conversation.

## DUTCH

### L-2. ELEMENTARY DUTCH (*First Semester*)

HENRI A. KUYPER

*Th 6-8 beginning Feb. 4. \$12.*

Instruction in elements of Dutch grammar. Reading and translation of articles from selected texts. This course is designed to give the student a thorough knowledge of the principles governing the correct use of the language.

## FRENCH

### L-3-3. ELEMENTARY FRENCH

DR. HARRY B. HUMPHREY

*M-W 6-7:30 beginning Feb. 8. \$18.*

Continuation of the instruction in elements of French grammar. Reading and translation of elementary articles from selected texts. This course is designed to prepare beginners for the advanced courses in French.

### U-3-3. ADVANCED FRENCH

DR. HARRY B. HUMPHREY

*Tu-Th 6-7:30 beginning Feb. 9. \$18.*

Continuation of fall semester.

## GERMAN

### L-3-3. ELEMENTARY GERMAN

DR. C. H. LEINWEBER

*M 6-9 beginning Feb. 1. \$18.*

Continuation of the instruction in elements of German grammar. Reading and translation of elementary articles from selected texts. This course is designed to prepare beginners for the advanced course in German.

### U-3-3. ADVANCED GERMAN

DR. C. H. LEINWEBER

*W 6-9 beginning Feb. 3. \$18.*

This course is intended to give the student a good reading knowledge of German. Besides Schiller's *Wilhelm Tell* and Goethe's *Hermann und Dorothea*, a number of contemporary short stories are read.

### U-2-2. GERMAN TRANSLATION

IRA T. BRAUNSTEIN

*W 6-8 beginning Feb. 3. \$12.*

Translation from German into English and English into German, including idiomatic German. The course will also be helpful to graduate students who intend to take reading examinations for advanced degrees.

## ITALIAN

### L-3-3. ELEMENTARY ITALIAN

INSTRUCTOR TO BE ANNOUNCED

*Tu 6-9 beginning Feb. 2. \$18.*

Continuation of the fundamentals of the language with practice in conversation and supplemented with graded readings.

## PORTUGUESE

### L-3. FIRST SEMESTER PORTUGUESE *Fall, 1943-44.*

DR. RAUL D'ECA

### L-3. SECOND SEMESTER PORTUGUESE

DR. RAUL D'ECA

*Tu-Th 6-7:30 beginning Feb. 2. \$18.*

Continuation of the first-semester course, with emphasis on conversation and theme writing, and frequent grammatical reviews.

## RUSSIAN

### L-3. ELEMENTARY RUSSIAN (*First Semester*)

GEORGE M. SAHAROV

*Th 6-9 beginning Feb. 4. \$18.*

The fundamentals of the language for beginning students of Russian (first two hours). Reading and translation of elementary articles (third hour).

L-3. ELEMENTARY RUSSIAN (*Second Semester*)

GEORGE M. SAHAROV

*Sec. I—M 6-9 beginning Feb. 1. \$18.*

*Sec. II—Tu 6-9 beginning Feb. 2. \$18.*

Continuation of the fundamentals of the language for beginning students of Russian (first two hours). Reading and translation of elementary articles (third hour).

L-3-3. INTERMEDIATE RUSSIAN

GEORGE M. SAHAROV

*W 6-9 beginning Feb. 3. \$18.*

Reading and translation of selected material. Sentence structure analysis and grammar review (first two hours). Practice in conversation (third hour).

SPANISH

L-2 or 3. FIRST SEMESTER SPANISH

*Sec. I—3 cr. M 6-9 beginning Feb. 1. \$18.*

*Sec. II—2 cr. Tu 8-10 beginning Feb. 2. \$12.*

*Sec. III—2 cr. W 6-8 beginning Feb. 3. \$12.*

GUSTAVO DURAN

DR. MANUEL DE J. SAINZ

DR. MARJORIE C. JOHNSTON

INDICATE CHOICE OF SECTION WHEN REGISTERING

Pronunciation, the use of idioms, building vocabulary, elements of grammar, simple conversation, and reading.

L-2 or 3. SECOND SEMESTER SPANISH

*Sec. I—3 cr. M 6-9 beginning Feb. 1. \$18.*

*Sec. II—2 cr. W 8-10 beginning Feb. 2. \$12.*

*Sec. III—2 cr. W 6-8 beginning Feb. 3. \$12.*

OLIVIA RUSSELL

DR. MANUEL DE J. SAINZ

RUBERTA M. OLDS

INDICATE CHOICE OF SECTION WHEN REGISTERING

Continuation of first semester work.

L-2. THIRD SEMESTER SPANISH

DR. MADALINE W. NICHOLS

*F 6-8 beginning Feb. 5. \$12.*

Short grammar review with practice in translations in Spanish and English, some free composition, conversation, intensive and extensive reading.

L-3. FOURTH SEMESTER SPANISH

RUBERTA M. OLDS

*Th 6-9 beginning Feb. 4. \$18.*

Continuation of third semester work.

U-2-2. SPANISH CONVERSATION AND LITERATURE

*Th 6-8 beginning Feb. 4. \$12.*

EDMUNDO LASSALLE

A course designed to develop ability to understand and to converse in idiomatic Spanish, to translate articles in newspapers and magazines, to compose and translate social letters; free composition.

Prerequisite: Two years of Spanish or equivalent.

U-2. COMMERCIAL SPANISH 1943-44.

GU-2. LA AMERICA LATINA Y LOS ESTADOS UNIDOS

(See POLITICAL SCIENCE)

U-2. MEXICAN CULTURE (See SPECIAL COURSES)

N-0. ADVANCED SHORTHAND IN SPANISH (See OFFICE SKILLS)

# DEPARTMENT OF SOCIAL SCIENCES

## DEPARTMENTAL COMMITTEE

CHARLES F. SARLE, Ph.D., *Executive Assistant for Scientific Services, Weather Bureau, Department of Commerce; formerly Director, Division of Economics, Commodity Credit Corporation (Chairman)*

ERIC ENGLUND, Ph.D., *Assistant Chief, Bureau of Agricultural Economics; Departmental Educational Counselor on Economics*

ASHLEY SELLERS, S.J.D., *Associate Solicitor, Office of the Solicitor; Departmental Educational Counselor on Law*

CONRAD TAEUBER, Ph.D., *Acting Head, Division of Farm Population and Rural Welfare, Bureau of Agricultural Economics; Departmental Educational Counselor on Sociology*

F. V. WAUGH, Ph.D., *Assistant Administrator, Agricultural Marketing Administration*

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## ANTHROPOLOGY

### U-2. THE ANTHROPOLOGY OF GLOBAL WARFARE

M 6-8 beginning Feb. 1. \$12.

DR. EARL H. BELL

The course is designed to give an understanding of the anthropological aspects of global warfare and diplomacy. Consideration will be given the cultural patterns and value systems of our allies, neutrals, and the inhabitants of territories which may be used as military bases—the role of racial philosophies in international relations. Social and cultural factors involved in establishing a lasting peace and maintaining commercial relations will be studied.

The course will be of value to those who participate in war planning, diplomacy, post-war planning; or to those who may be stationed in foreign countries or involved in developing or administering foreign policy.

Prerequisite: Consent of instructor.

### U-2. EVOLUTION OF IDEAS

DR. MARK GRAUBARD

W 6-8 beginning Feb. 3. \$12.

A study of our culture in the making; the progression of ideas and beliefs; the cultural anthropology of modern society. Such topics are considered as the reign and downfall of astrological assumptions, the witchcraft delusion and its logic, alchemy and modern chemistry, evolution in medicine, fads and theories in biology, folklores in the Nineteenth Century, acceptance of agriculture sciences and modern nutrition, the conflict between democracy and fascism.

## ECONOMICS

### U-3-3. PRINCIPLES OF ECONOMICS

DR. F. L. THOMSEN

Tu-Th 6-7:30 beginning Feb. 2. \$18.

The principles of money and banking. The relation between money and credit and price levels and business activity. Government finance. The nature and causes of business cycles. Proposed preventives of and remedies for business depressions. International economic relations. Political-economic "isms". This is a continuation of the first semester course. Students who have not had the first semester may enter with consent of the instructor.



U-3. ECONOMIC WARFARE  
*Tu-Th 6-7:30 beginning Feb. 2. \$18.*

DR. MAX J. WASSERMAN

This study of modern economic warfare will begin with an analysis of the circumstances which led to the present conflict; study in some detail the economic organization, defense and attack methods of the belligerents and their collaborators; examine the post-war economic plans for a durable peace. Lectures, class discussion, readings in a selected bibliography of the current literature on the subject.

GU-3. PRINCIPLES AND PROBLEMS OF TRANSPORTATION  
*1943-44.*

DR. RALPH L. DEWEY

*Offered Cooperatively by American University*

GU-3. MONEY AND BANKING

DR. AMOS E. TAYLOR

*M 6-8:10 beginning Feb. 1. Audit \$24. Credit \$30.  
See A.U. catalog, Econ. 470.*

GU-3. BASIC PROBLEMS IN TRANSPORTATION AND  
COMMUNICATION

DR. LUDWIG M. HOMBERGER

*W 8:15-10:25 beginning Feb. 3. Audit \$24. Credit \$30.  
See A.U. catalog, Econ. 451.*

GU-3. ECONOMIC GEOGRAPHY AND TRANSPORTATION OF  
LATIN AMERICA

DR. LUDWIG M. HOMBERGER

*M 8:15-10:25 beginning Feb. 1. Audit \$24. Credit \$30.  
See A.U. catalog, Econ. 467.*

GU-3. INTERNATIONAL ECONOMIC POLICIES IN TRANSITION

*M 8:15-10:25 beginning Feb. 1. Audit \$24. Credit \$30. DR. ADOLPH B. DRUCKER  
See A.U. catalog, Econ. 473.*

G-3. THE STRUGGLE AGAINST INFLATION

DR. FRITZ KARL MANN

*Tu 6-8:10 beginning Feb. 2. Audit \$24. Credit \$30.  
See A.U. catalog, Econ. 574.*

G-3. PROBLEMS OF THE POST-WAR WORLD

*M 8:15-10:25 beginning Feb. 1. Audit \$24. Credit \$30. DR. GEORGE B. GALLOWAY  
See A.U. catalog, Econ. 570.*

G-3. ANALYSIS OF METHODS OF ECONOMIC REASONING

*Tu 8:15-10:25 beginning Feb. 2. Audit \$24. Credit \$30. DR. KARL PRIBRAM  
See A.U. catalog, Econ. 602.*

## LABOR ECONOMICS

\*GU-3. FARM LABOR PROBLEMS

DR. WILLIAM T. HAM

*M-W 6-7:30 beginning Feb. 1. \$21.*

This course deals with the economic and social relationships of labor, both farm family and hired, in different type-of-farming areas, on farm enterprises of varying size, and at different times in the history of American agriculture. Factors affecting the supply of farm labor, the demand for it, and its remuneration are analyzed. Attention is given to seasonal and migratory workers, and to the present position of the "hired hand" on the "agricultural ladder." Methods of improving the lot of agricultural laborers are considered, also the impact of the war, here and abroad, upon their status.



\*GU-3. LABOR AND SOCIAL LEGISLATION

DR. DAVID ZISKIND

*M 8-10:30 beginning Feb. 1. \$21.*

This course deals with the problems of the individual worker and the progress of social legislation designed to improve his labor standards. It reviews the legislation on child and woman labor, safety and health, accident compensation, wage payment and collection, minimum wages, maximum hours, unemployment insurance, and old-age pensions. Attention will be given the administrative techniques of the Social Security Board, the Railroad Retirement Board, and the Wage-Hour Division of the Department of Labor, as well as the various State labor departments.

GU-3. SETTLEMENT OF LABOR DISPUTES

DR. DAVID ZISKIND

*W 8-10:30 beginning Feb. 3. \$21.*

An analysis of strikes and lockouts, a study of conciliation and arbitration, and a survey of private-industry adjustment schemes. Special attention will be given the work of the United States Conciliation Service, the National War Labor Board, State Boards of Mediation and Arbitration, and the impartial machinery of the garment, printing, and maritime industries.

\*GU-3. ORGANIZED LABOR AND THE LAW

DR. DAVID ZISKIND

*Fall, 1943-44.*

GU-3. LABOR AND THE WAR PROGRAM

DR. DAVID ZISKIND

*Fall, 1943-44.*

GU-2. RESEARCH METHODOLOGY IN ECONOMICS

*1943-44.*

DR. MICHAEL T. WERMEL

## AGRICULTURAL ECONOMICS

GU-3. COMPARATIVE AGRICULTURE

CLAYTON E. WHIPPLE

*Tu-Th 6-7:30 beginning Feb. 2. \$21.*

A survey of countries of strategic agricultural importance including France, Germany, Denmark, Italy, Russia, the Danubian countries, China, India, Japan, Australia, Argentina, and Canada. Each country will be studied in terms of climate, topography, soils, types of farming regions, crop and animal enterprises, markets and transportation, foreign trade, and probable position in the post-war agricultural picture.

\*GU-3. SOCIAL AND ECONOMIC HISTORY OF AMERICAN

AGRICULTURE 1944-45.

EVERETT E. EDWARDS

\*GU-3. PRODUCTION ECONOMICS

DR. SHERMAN E. JOHNSON AND

*Fall, 1944-45.*

DR. WYLIE D. GOODSSELL

\*GU-3. FARM MANAGEMENT

DR. SHERMAN E. JOHNSON AND

*M-W 6-7:30 beginning Feb. 1. \$21.*

DR. WYLIE D. GOODSSELL

This course considers the most economic combination of resources used in farming, the combination of farm enterprises and their efficient operation on individual farms, and the basis for formulation of farming programs for agricultural areas.

Prerequisite: Production Economics or its equivalent.

\*GU-3. LAND ECONOMICS

DR. V. WEBSTER JOHNSON

*Fall, 1943-44.*

\*GU-3. SEMINAR IN LAND ECONOMICS RESEARCH

*Spring, 1943-44.*

DR. V. WEBSTER JOHNSON

\*GU-3. AGRICULTURAL FINANCE

*1944-45.*

DR. FRED L. GARLOCK AND

DR. DONALD C. HORTON

\*GU-3. COTTON MARKETING

*M-W 6-7:30 beginning Feb. 1. \$21.*

DR. JOHN W. WRIGHT

Although primary emphasis will be placed on the marketing system for raw cotton and its functioning through all stages of the distributive process from sale by producers to purchase by spinners and related problems, the course will cover also the manufacturing processes and the organization of the cotton textile industry, the system of distribution of manufactured cotton goods, and the general situation with respect to cotton in the present world economy.

Prerequisite: At least one course in general economic theory and preferably a general course in marketing.

\*G-2-2. PRINCIPLES OF AGRICULTURAL MARKETING

*W 6-8 beginning Feb. 3. \$14.*

RICHARD O. BEEN AND SPECIALISTS

Emphasis will be on the application of economic and statistical theory to the analysis of problems in marketing farm products.

New students admitted with consent of instructor.

Prerequisite: General economic theory, and course work in marketing or a year's experience in research, teaching, or regulatory work in marketing.

\*G-3. FORECASTING DEMAND FOR AGRICULTURAL PRODUCTS

*Fall, 1943-44.*

DR. F. L. THOMSEN

\*G-3. AGRICULTURAL PRICE ANALYSIS

*Spring, 1943-44.*

DR. F. L. THOMSEN

*Offered Cooperatively by American University*

GU-3. AGRICULTURAL ECONOMICS

DR. O. C. STINE

*M 6-8:10 beginning Feb. 1. Audit \$24. Credit \$30.*

*See A.U. catalog, Econ. 461.*

ECONOMIC THEORY

GU-3-3. HISTORY OF ECONOMIC THOUGHT DR. MAX J. WASSERMAN

*M-W 6-7:30 beginning Feb. 1. \$21.*

An examination of the principal economic theories from Greek antiquity to the present time in the light of the institutions, customs, and practices which conditioned them.

New students admitted.

\*G-3-3. ECONOMICS OF IMPERFECT COMPETITION

*W 6:30-9:30 beginning Feb. 10. \$21.*

DR. MICHAEL T. WERMEL

The usefulness and applicability of the theoretical apparatus developed in the first semester will be tested by a study of actual institutional practices, of price determination in specific markets in industries such as rubber tires, agricultural implements, drugs, meat packing, fertilizer, canning, etc., where admittedly neither "perfect competition" nor "pure monopoly" prevails.

*Offered Cooperatively by American University*

GU-3. ECONOMIC THEORY

DR. HOWARD S. PIQUET

*Th 8:15-10:25 beginning Feb. 4. Audit \$24. Credit \$30.*

*See A.U. catalog, Econ. 404.*

G-3. CONTEMPORARY ECONOMIC THOUGHT

*Th 6-8:10 beginning Feb. 4. Audit \$24. Credit \$30.*

DR. HOWARD S. PIQUET

*See A.U. catalog, Econ. 502.*

HISTORY AND POLITICAL SCIENCE

U-2. WORLD POLITICS

DR. W. M. GEWEHR

*Tu 6-8 beginning Feb. 2. \$12.*

A survey of world affairs and international relations. Such topics will be considered as the origins of the World War of 1914-18, the Versailles Conference and the treaties that brought no peace; revolution in Germany and Russia; the conditions that gave rise to Mussolini and Hitler; the nature of Naziism, Fascism and Communism; the breakdown of the peace machinery; the war; basic issues in the Far Eastern situation; problems and prospects of Pan-Americanism.

U-2. RECENT AMERICAN HISTORY

DR. W. M. GEWEHR

*Th 6-8 beginning Feb. 4. \$12.*

A consideration of the important political, economic, and social changes of the last fifty years. Among the topics to be studied are conditions at the turn of the century; the rise of American imperialism; big business and politics; the progressive movement and liberal reform; America and the first World War; the return to "normalcy"; the second Roosevelt's New Deal; the United States in world affairs today.

U-2. PROBLEMS OF INTERNATIONAL ORGANIZATION

*W 6-8 beginning Feb. 3. \$12.*

DR. ALBERT VITON

After a brief survey of the rise of the modern national state system and the conflict in Western thought between nationalism and internationalism, the League of Nations and the other international institutions established at the end of the last war, attention will be focused on the chief political, social, and economic problems which will confront the victorious democracies at the end of the war. Special emphasis will be placed on the problems of the Pacific and Asia. The problems of immediate relief and reconstruction of conquered and occupied areas, and methods now being devised in Britain, the United States, and by exiled governments for dealing with those problems. Contemporary theories of federal union and reconstruction of the League of Nations. The problem of control of national military forces; theories of international military organizations. The nature of the colonial problem, its significance and the possible solutions now being devised. Problems of surplus population, international trade, raw materials and industrialization of "backward" areas. The problem of international security, arbitration of disputes and world economic social planning. Minority and imperialist problems of the Near East. The place of Soviet Russia in the new order in the Pacific, its policies and influence on the peace settlement, and future relations with America. The new balance of power in the Pacific and the role of the United States.

\*GU-3. SOCIAL AND ECONOMIC HISTORY OF AMERICAN

AGRICULTURE 1944-45.

EVERETT E. EDWARDS

## GU-2-2. LATIN AMERICA AND THE UNITED STATES

*Th 8-10 beginning Feb. 4. \$14.*

PHILIP LEONARD GREEN

The second semester embraces fundamental trends and influences that have militated for and against inter-American friendship, from earliest times to and including the Good Neighbor policy. It describes both official and non-governmental Pan American activities, presents problems and indicates opportunities facing the Americas today.

New students admitted with consent of instructor.

## GU-2-2. LA AMERICA LATINA Y LOS ESTADOS UNIDOS

*M 8-10 beginning Feb. 1. \$14.*

PHILIP LEONARD GREEN

*Lectures and discussions in Spanish.*

This course aims to provide an opportunity to achieve greater facility in Spanish, while acquiring useful and interesting information on the life of Latin American countries and their relations with us. The subject material, though substantially similar to that of the English course entitled "Latin America and the United States" (see above), is presented in a somewhat different manner. Stress is placed on the guided use of materials in Spanish, preferably those originating in Spanish-American countries. Attention is given to linguistic divergencies among the various countries, an adequate understanding of which can only be imparted to students who are sufficiently advanced to follow lectures in Spanish. Therefore, registration in this course is limited to those who have had the requisite instruction and practice in this language. Those who are in doubt as to their adequacy in this regard are advised to confer with the instructor before registering.

New students admitted with consent of instructor.

## SOCIOLOGY

### \*GU-3. THE EVOLUTION OF AMERICAN RURAL LIFE

*Fall, 1943-44.*

DR. CARL C. TAYLOR

### \*GU-2-2. REGIONAL SOCIAL STRUCTURE OF THE AMERICAS

*M 6-8 beginning Feb. 8. \$14.*

DR. CHARLES P. LOOMIS

The rural and urban cultures in the Latin American countries will be compared with those of Anglo-America. Special attention will be given to the differences in class structure, attitudes, or value orientations of the populations of the nations and their various ethnic and other groups. Attention will be given to the underlying causes of tensions and antagonisms as well as cooperative sentiments existing between countries and among groups within the various countries. Throughout the course the reciprocal influence of geographical and cultural factors in the various countries will be discussed. All required reading in English. Suggested Spanish and Portuguese bibliography.

New students admitted with consent of instructor.

### \*GU-3. CULTURAL REGIONS OF THE UNITED STATES

*1943-44.*

DR. CARL C. TAYLOR

### GU-3. RURAL POPULATIONS TRENDS

*1943-44.*

DR. CONRAD TAEUBER

### \*GU-3. RURAL COMMUNITY ORGANIZATION

*1943-44.*

DR. CHARLES P. LOOMIS AND DR. DOUGLAS ENSMINGER

### \*GU-3. CONTEMPORARY SOCIAL THEORY

*1943-44.*

DR. CHARLES P. LOOMIS

\*GU-2. SOCIAL PSYCHOLOGY

1943-44.

\*G-3. RURAL SOCIAL PSYCHOLOGY

DR. CARL C. TAYLOR

1943-44.

*Offered Cooperatively by American University*

G-3. INTERNATIONAL POPULATION PROBLEMS DR. FRANK LORIMER

F 6-8:10 beginning Feb. 5. Audit \$24. Credit \$30.

See A.U. catalog, Soc. Econ. 512.



# DEPARTMENT OF PUBLIC ADMINISTRATION

## DEPARTMENTAL COMMITTEE

LEON O. WOLCOTT, Ph.B., LL.B., *Assistant Director, Office for Agricultural War Relations and Departmental Educational Counselor on Public Administration (Chairman)*

PETER KEPLINGER, M.S.F., *Staff Assistant in Administrative Management, Forest Service*

VERNE B. LEWIS, B.Ed., *Budget and Planning Officer, Division of Foreign Funds, Treasury Department*

JOHN THURSTON, Ph.D., *Administrative Council, Department of Agriculture*

DEWITT C. WING, *Senior Information Specialist, Office of Information and Departmental Educational Counselor on Information and Public Relations*

## OPPORTUNITIES FOR STUDY AND WORK

The modern state truly is as its officers are. Competence of personnel, especially managerial personnel, is an urgent present need and an obvious post-war imperative. Assuring and adding to that competence is the sole objective of the Graduate School.

The importance of public administration is apparent in the modern state with its emphasis on services, control, operation, and collective action in the public interest. The more the public service is called upon to assume functions previously exercised by individuals or private enterprise, the greater the importance of the principles and techniques of public administration. The unprecedented and increasing delegation of discretion to administrative agencies has raised unprecedented problems of organization, public consent, and administrative responsibility.

Washington is of necessity the national focal point of all these developments. Many of the ablest and most experienced public administrators are of necessity assembled in Washington. Many of the most competent practitioners of the various specialized branches of administration are likewise concentrated in Washington. Utilizing this unique environment and this unexcelled talent, the Graduate School offers courses geared to demonstrated needs and taught by experienced administrative personnel.

Management problems raised by the war, and aggravated by leave of administrative personnel for military duty, have created an unparalleled demand for trained men and women in all branches of administrative management. The situation has resulted in recruitment of persons from private industry, appointment of persons not so well trained and experienced as in normal times, and the promotion in some cases of meagerly trained personnel at an unusual rate. The demand for good administrative personnel has become so critical that

some agencies have felt compelled to take special measures, in the interest of efficiency, to prevent the loss of such personnel through transfers. This is obviously not a normal situation, but it nevertheless illustrates the critical need for more and better training in public administration, particularly in the junior and assistant positions, even in normal times.

## SUGGESTIONS FOR PROGRAM OF STUDY

The following courses cover a wide range of approaches for varying levels of responsibility. Some give background and attitude, and some give methods and skill. Some have their objectives high and broad for perspective and knowledge of relationships; some have their objectives comparatively narrow and sharply focused for skill and ability to perform particular tasks. It is hoped that employees will select those courses which supplement and complement their work assignments rather than concentrate exclusively on more intensive training in the performance of daily tasks.

*General.* Persons who have not had such a course, or varied administrative experience, should begin with Introduction to Public Administration. This course should precede courses in special branches of administration (e.g., personnel or financial administration) in order that such courses may be of maximum usefulness.

*Personnel Administration.* Unless substantial experience can be substituted, the general course, Personnel Administration, should be taken before the specialized courses (such as Position Classification, Selection and Placement, etc.). Persons who are in grade CAF-5 or below and desire to prepare for personnel work should take Personnel Procedure at the earliest opportunity; they should not attempt to take the specialized courses until they have gained substantial experience in personnel work or have carefully laid a foundation by completing all basic, general courses.

*Financial Administration and Purchasing.* Budget Formulation logically precedes Budget Execution. In purchasing, students qualified to work toward the program for a Certified Statement of Accomplishment in Public Administration should take Governmental Purchasing. It is desirable for other students to take Purchasing Procedure first.

*Accounting and Auditing.* Students in grades below CAF-5 will find it advantageous to begin with Federal Accounting Procedure or Federal Auditing Procedure. Preparation for higher-level accounting should begin with a year's study of Principles of Accounting, after the completion of which Federal Government Accounting may be taken. Second Year Accounting, Cost Accounting, Auditing, Federal Tax

Accounting, Advanced Accounting Problems, and Mathematics of Finance provide advanced training for those who desire to progress further with a general accountancy program. (See program below for Certified Statement of Accomplishment.)

## CERTIFIED STATEMENTS OF ACCOMPLISHMENT

Certified Statements of Accomplishment are offered in two fields of public administration—fields representing areas of preparation and application most useful in the public service—and in accounting.

The student who completes one of the programs outlined below is eligible to receive a Certified Statement of Accomplishment bearing the official seal of the School and signed by the Director of the School and by the Chairman of the Department of Public Administration. The Statement is not merely a diploma-like certificate nor simply a transcript of credit, but combines certain features of both. It is a certification that the student has completed a well-rounded course of study preparatory for effective public service in (1) administrative procedures, (2) public administration, or (3) accounting. Courses completed and quality of accomplishment will be recorded on the back of the Statement, which may be used as a personal record of achievement or a public record of qualification.

Certified Statements of Accomplishment are offered in the three fields described below.

### I. PUBLIC ADMINISTRATION

#### *Approach*

Broad-gauge, essentially long-range approach to develop leadership, perspective, broad outlook, and understanding of the human factors in administration; emphasis on principles, with opportunity for study of some techniques in relation to policy.

#### *Objectives*

Ultimately, for policy formulation, improvement of administrative machinery, coordination of operations, and general management and control of large units. Immediately, for initial investigations as a junior member of a staff having the responsibilities named above, for assumption of increasingly difficult and more responsible assignments in these fields, and for supervision and management of small units.

#### *Requirements*

1. Bachelor's degree or equivalent. (Note: This requirement may be waived in the case of well-qualified students who have received a Certified Statement of Accomplishment in Administrative Procedures.)

2. Sixteen semester hours of credit in Graduate School courses in public administration, with at least four credits in each of the following fields:
  - a. General Administration (courses in introductory public administration, supervision, scientific management, organization, administrative law, public relations, management psychology, etc.)
  - b. Personnel Administration (courses in introductory personnel administration, position classification, selection and placement, counseling, training, employee relations, etc.)
  - c. Financial Administration (budget formulation, budget execution, governmental purchasing, governmental accounting, etc.)

The program leading to a Certified Statement of Accomplishment in Public Administration should be of special interest to

1. Persons already employed in responsible administrative positions. Included in this group are many with specialized training who have been transferred to administrative positions from professional positions without training or previous experience in administration.
2. Junior Administrative Assistants and junior administrative technicians of all kinds.
3. Recently recruited Junior Professional Assistants. Those who entered the service with a public administration option may profit from courses both more advanced and more specialized than those taken in college. Those who entered on various professional options and are now employed in such professions can profit very greatly from these courses if they expect, or wish to prepare, to enter into administrative work connected with their professional fields.
4. Employees who wish to broaden their understanding and improve their efficiency through a "tour of duty" by study, in lieu of an actual tour of duty for which they have found no opportunity.
5. Employees with college background who aspire to transfer to a career in administrative management.

## II. ADMINISTRATIVE PROCEDURES

### *Approach*

Emphasis on techniques, procedures, methods, but with an attempt to understand and use these means in terms of administrative ends or objectives.



### *Objectives*

Ultimately, for responsible conduct of important "housekeeping" operations of specialized character, direction of small units, performance of most difficult and responsible tasks in the procedural aspects of administration, and the settlement of questions of intermediate importance arising out of current or contemplated operations and not covered by existing regulations or decisions.

Immediately, for effective service in some administrative procedure at the clerical or semi-clerical level, as a means of entrance into the line of promotion leading to the responsibilities named above. (Students already at this level may arrange programs in conformity with their needs.)

### *Requirements*

1. High school diploma or equivalent.
2. Sixteen semester hours of credit selected from the following Graduate School courses:
  - a. All those offered in the Department of Public Administration (excluding all accounting courses except Federal Government Accounting). A minimum of eight credits must be selected from this group.
  - b. The following offered in the Department of Office Skills:
    - (1) Purchasing Procedure
    - (2) Federal Auditing Procedure or Auditing Procedure
    - (3) Federal Accounting Procedure
    - (4) Personnel Procedure
    - (5) Office Management
    - (6) Communications and Records Management
    - (7) Government Letter Writing (2 credits only)
  - c. A course in elementary statistics (3 credits)

The program leading to a Certified Statement of Accomplishment in Administrative Procedures should be of special interest to

1. Persons already employed in administrative work of the procedural type, emphasizing techniques and skills.
2. Employees who aspire to enter administrative work but who, because of lack of college education, find their opportunities in that field greatly limited except at the procedural level. This program of courses is useful for persons with good native ability but limited educational background, because it prepares them for a level of work most likely to be open to them. After they have succeeded in getting into administrative work, perhaps even at the clerical-administrative level, they can then combine



their work-experience and study-experience to mutual advantage as progress is made toward greater responsibility. This approach is believed to be better for such persons than the common practice of attempting to circumvent the usual educational requirements by short-cut concentration on advanced and specialized courses, which are actually preparatory for responsible positions only insofar as they *supplement* broader educational background.

3. Employees who wish to prepare to become Junior Administrative Assistants or to head units concerned with administrative procedures.

### III. ACCOUNTING

The Graduate School is interested in offering accounting courses primarily as a means of training for the *public* service. Elementary and advanced accounting courses have been offered by the School for 10 years, and because of increasing demands for advanced work, it is believed that the time has now arrived for offering a coordinated program leading to a Certified Statement of Accomplishment in that field.

The curriculum necessarily includes courses in general accounting because the basic principles are essential for government accounting. The scope of accounting in the Federal service is wide. There are increasing demands for accountants having a knowledge of commercial as well as government accounting. These demands have come as a result of the formation of many government corporations and Federal regulatory agencies. Hence, the accounting program required for a Certified Statement of Accomplishment is broad enough to cover not only the regular appropriation accounting of the Federal government, but also the accounting training needed for many other governmental activities. The program is comprehensive enough to meet both advanced training for the government service, and also the usual educational requirements for C.P.A. examinations.

#### *Requirements*

1. High school diploma or equivalent.
2. Forty-two semester hours of credit distributed according to the following plan:

#### REQUIRED COURSES

<i>Accounting</i>	<i>No. of Semesters</i>	<i>Credits (Sem. Hrs.)</i>
Principles of Accounting	2	6
Second Year Accounting	2	6
Cost Accounting	1	3
Auditing	1	3

<i>Accounting</i>	<i>No. of Semesters</i>	<i>Credits (Sem. Hrs.)</i>
Federal Government Accounting (Optional for persons not planning to enter Federal accounting work.)	1	3
Federal Tax Accounting	1	3
Advanced Accounting Problems	1	3
<i>Related Subjects</i>		
Principles of Economics	2	6
*Business Law	2	6

### ELECTIVE COURSES

Mathematics of Finance	1	3
Budgetary and Financial Administration	2	4
Survey of Statistics	1	3
or Elementary Statistics	2	4
Federal Accounting Procedure	1	2
Federal Auditing Procedure	1	2
or Auditing Procedure	2	4
*Public Finance and Taxation	1	3
*Money and Banking	1	3
*Corporation Finance	1	3

\* *Cooperative with American University.*

NOTE: Courses preceded by a symbol and two figures (e.g., G-2-2 or L-3-3) are full-year courses now beginning the second half. Unless otherwise stated, new students will not be admitted to such classes unless they have had the first half or its equivalent or the consent of the instructor.

## GENERAL ADMINISTRATION

### U-3. INTRODUCTION TO PUBLIC ADMINISTRATION

W-F 6-7:30 beginning Feb. 3. \$18.

INSTRUCTOR TO BE ANNOUNCED

This course is designed to introduce the student to the elements of public administration. Attention will be devoted to the evolution of administrative organization; organizational types: staff, line, and auxiliary agencies and functions; controls of administration; the broadest aspects of personnel selection, classification, training, movement, and relations; budgeting and fiscal control; federal-state relations; administrative legislation and adjudication. The object of the course is to lay a broad foundation for more intensive courses in management.

### GU-2. SCIENTIFIC MANAGEMENT

FRANCIS GOODELL

Th 6-8 beginning Feb. 4. \$14.

Survey of the principles and methods of scientific management as developed originally for factory control and later for general management. Scientific management techniques discussed both for their direct value in increasing production and as factors of morale. Research as guidance for administrative and managerial planning. The course will emphasize the dynamics of organized effort, and consider incentives appropriate to federal administration.

Prerequisite: Open to executives with some training or experience in public or private enterprise; or consent of instructor.

## GU-2. ORGANIZATIONAL AND PROCEDURAL ANALYSIS

*Hours to be arranged.*

COMDR. JOSEPH POIS

Course description and hours of class meetings will be supplied upon inquiry at the Graduate School Office.

## GU-2. MANAGEMENT PSYCHOLOGY 1943-44.

DR. RENIS LIKERT

# PERSONNEL ADMINISTRATION

## L-2. PERSONNEL PROCEDURE (See OFFICE SKILLS)

## U-2. PERSONNEL ADMINISTRATION

EDWARD N. TISDALE

*M 6-8 beginning Feb. 1. \$12.*

This course will deal with the personnel problems which arise when people are associated together in a work situation. It will be designed to acquaint the student with the basic personnel policies and practices which have been found necessary and useful in coping with these problems. Trends in public personnel administration and its relationship to over-all management will be discussed. The course will be helpful to supervisors and administrators who desire a broad understanding of personnel administration and also to students who need foundation for the more specialized courses in the personnel field.

## G-2. PERSONNEL ADMINISTRATION

LOUIS J. KROEGER

*M 6-8 beginning Feb. 1. \$14.*

This is a graduate course dealing with the same problems and content described in the undergraduate course listed immediately above.

Prerequisite: Bachelor's degree or employment in personnel work at grade CAF-7 or above.

## U-2. POSITION CLASSIFICATION

ROBERT L. HILL

*F 6-8 beginning Feb. 5. \$12.*

This is an introductory course designed to give the student an understanding of the fundamental concepts of position classification and its uses; the relation of classification to compensation and other phases of personnel administration; the historical background of position classification in the Federal Service; an analysis of the Classification Act of 1923 and its amendments and its relation to other personnel processes; position analysis and factors to be considered in the allocation of positions.

Prerequisite: 60 semester hours of college work or consent of the instructor.

## G-2. POSITION CLASSIFICATION (for graduates only)

*Fall, 1943-44.*

DR. O. GLENN STAHL

## GU-2. ADVANCED POSITION CLASSIFICATION

JAMES L. BUCKLEY

*M 6-8 beginning Feb. 1. \$14.*

A detailed study of Federal position classification based primarily on specific cases. Emphasis will be placed on factors that enter into the allocation of positions and the application of such factors in actual and hypothetical classification situations.

Prerequisite: Position Classification or technical classification experience.

## GU-2. TRAINING TECHNIQUES

*Fall, 1943-44.*

C. O. HENDERSON AND  
DR. LEWIS H. ROHRBAUGH

## GU-2. WAR-TIME TRAINING PROBLEMS

*F 6-8 beginning Feb. 5. \$14.*

C. O. HENDERSON AND  
DR. LEWIS H. ROHRBAUGH

Because of personnel turnover, fewer and less qualified personnel, expanded and new agency functions, and other factors peculiar to war-time conditions, management in the public service is depending more than ever before on training as an effective means of helping to meet administrative and supervisory problems. This course is designed to aid training and personnel officers, supervisors, and others in an attack on difficulties growing out of the manpower situation.

The course will operate primarily as a clinic on actual problems faced by participants in their jobs. From group analyses of these problems and how they can be best met will be drawn general principles and practices effective in replacement training situations. Current approaches used by various federal agencies will be introduced into the clinic. Limited to eighteen.

## GU-3. SELECTION AND PLACEMENT

*Tu 6:30-9:30 beginning Feb. 2. \$21.*

ARTHUR B. MCLEAN

The study of recruiting, examination, and certification of employees of the Federal government with special reference to comparable practices in private business and in other government organizations. Placement activities carried on by the agencies themselves, such as interviewing, personnel inquiries, transfers, promotions, and the better use of the probationary period.

## GU-2. EMPLOYEE RELATIONS

*M 6:30-8:30 beginning Feb. 1. \$14.*

DR. WARD STEWART

A survey of current thought and practice arising out of relationships between management and employees in the public service. Consideration will be given to such subjects as the following: the place of employee relations in personnel management and in public administration generally; trends in public service unionism; theories of governmental employment and their implications; alternative policies concerning employee relations and employee organization; areas and types of collective negotiation; the place of the personnel office in employee relations; problems of representation of unorganized employees; and the objectives and benefits of employee participation in the formulation of administrative policies. Emphasis will be placed upon the development of practical solutions to current problems presented by class members for general discussion. The sessions will be conducted in seminar fashion with a maximum of individual participation.

Prerequisite: Bachelor's degree or consent of the instructor.

## FINANCIAL ADMINISTRATION

### GU-2. BUDGETARY AND FINANCIAL ADMINISTRATION:

#### BUDGET FORMULATION

*Fall, 1943-44.*

W. A. JUMP AND SPECIALISTS

### GU-2. BUDGETARY AND FINANCIAL ADMINISTRATION:

#### BUDGET EXECUTION

*Th 6-8 beginning Feb. 4. \$14.*

W. A. JUMP AND SPECIALISTS

This is the second part of an advanced two-semester course covering the broad phases of budgetary and financial administration in the Federal Government. Several officials from bureaus and department budget offices, and other budgetary and financial organizations, will lecture and lead discussions.

This semester deals with the execution of the budget after being enacted by Congress and the relationships of administrative planning and control, accounting, auditing, and financial reporting to budget execution.

Prerequisite: Experience in budgetary or financial administration; courses in government or public administration; or consent of instructor.



## GU-2. GOVERNMENTAL PURCHASING

SAMUEL A. SNYDER

*F 6-8 beginning Feb. 5. \$14.*

This is a course designed to give more advanced training to persons who have completed the course in Purchasing Procedure and to enable persons actively engaged in purchasing to be brought up-to-date on the practices, procedure, economics, and law (from the layman's point of view) of governmental purchasing. Among the topics to be considered are the organization and management of the purchasing office, public contracts, specification writing, market analysis, and public procurement under war-time conditions. A few leading specialists will be called in to discuss the more specialized phases of procurement.

### L-1. PURCHASING PROCEDURE (See OFFICE SKILLS)

## ACCOUNTING

*See page 51 for a suggested program of study and for the requirements for a Certified Statement of Accomplishment in Accounting.*

### L-3. PRINCIPLES OF ACCOUNTING—1st half

WILLIAM H. ROWE AND  
ALBERT N. GREENFIELD

*M-W 6-7 beginning Feb. 1. Laboratory M 7-9 beginning Feb. 8. \$18.*

Elementary principles of accounting; discussion and problems. At the end of the semester students will be prepared to devise the accounting methods necessary for a small business organization, make the necessary entries in the records, draw up statements at the end of the fiscal year, adjust the accounts for accruals, deferred items, depreciation, etc., and close the books.

### L-3. PRINCIPLES OF ACCOUNTING—2nd half

JOHN F. MCSHEA,  
W. E. CAMPBELL AND WILLIAM K. BROWNOLD

*Tu-Th 6-7 beginning Feb. 2. Laboratory Tu 7-9 beginning Feb. 9. \$18.*

Continuation of first semester covering the more advanced principles of accounting; account classifications; the valuation of assets and depreciation policies; manufacturing accounts; partnership accounts; and corporation accounting, particularly the treatment and interpretation of capital stock, surplus, and reserve accounts.

## U-3-3. SECOND YEAR ACCOUNTING

DR. ALLAN J. FISHER

*F 6-9 beginning Feb. 5. \$18.*

Valuation, asset values, liabilities and net worth, allocation of income, and expense to proper fiscal period as part of problem of valuation, deferring expenses, and treatment of unusual losses and gains, profits and dividends and the relationship of funds to reserves.

Prerequisite: First year accounting or equivalent.

### L-2. FEDERAL ACCOUNTING PROCEDURE (See OFFICE SKILLS)

### U-3. FEDERAL GOVERNMENT ACCOUNTING

W. R. QUIGLEY

*W 6-9 beginning Feb. 3. \$18.*

A detailed study of appropriation and fund accounting, including the relative parts affecting the administrative agencies, the Treasury, and the General Accounting Office. The relationship between accounting for governmental corporations and administrative agencies will be covered. Special emphasis will be given to the Summary System of Accounts prescribed by Executive Order No. 8512 and the manner in which administrative agencies will be affected by it. Specialists in

their respective fields will assist in the course, including Jay L. Chambers, Assistant to Commissioner of Accounts, Treasury Department, and J. J. Somers, Assistant to Director of Finance, Department of Agriculture.

Prerequisite: One year of basic accounting, or Federal Accounting Procedure, or one year of experience with the Federal system of accounting.

GU-3. COST ACCOUNTING

JOHN J. BACHMANN

*Fall, 1943-44.*

GU-3. AUDITING

JOHN J. BACHMANN

*Tu 6-9 beginning Feb. 2. \$21.*

The purposes and types of audits will be studied. Consideration will be given to such problems as the planning and performing of audits, principles and auditing of different types of audits, audit working papers and reports, and responsibility of the auditor.

Prerequisite: Second year accounting.

L-2. FEDERAL AUDITING PROCEDURE (See OFFICE SKILLS)

GU-3. MATHEMATICS OF FINANCE

WILLIAM H. ROWE

*Spring, 1943-44.*

GU-3. FEDERAL TAX ACCOUNTING 1943-44.

GU-3. ADVANCED ACCOUNTING PROBLEMS 1944-45.

*Offered Cooperatively by American University*

GU-3. PRINCIPLES OF MANAGERIAL ACCOUNTING

B. E. GOETZ

*Th 6-8:10 beginning Feb. 4. Audit \$24. Credit \$30.*

*See A.U. catalog, Econ. 498.*

GU-3. THE ACCOUNTING SYSTEM OF THE UNITED STATES  
GOVERNMENT

E. F. BARTELT

*Tu 8:15-10:25 beginning Feb. 2. Audit \$24. Credit \$30.*

*See A.U. catalog, Econ. 489.*

# DEPARTMENT OF OFFICE SKILLS

## DEPARTMENTAL COMMITTEE

JAMES F. GRADY, A.B., *Deputy Director, Recruitment and Manning Organization, War Shipping Administration; former Correspondence Counselor, Department of Agriculture*

HENRY A. DONOVAN, *Assistant Chief, Bureau of Agricultural Chemistry and Engineering; Departmental Educational Counselor on Office Skills*

STROTHER B. HERRELL, *Assistant Director of Personnel*

JOHN S. LUCAS, *Assistant Chief, Office of Plant and Operations*

VIVIA A. FORD, B.S., *Executive Assistant to the Administrator, Farm Security Administration*

The courses described under Office Management and Clerical-Administrative Procedures are closely related to those offered in the Department of Public Administration and are an integral part of the program leading to the Certified Statement of Accomplishment in Administrative Procedures (see Department of Public Administration for details.) They are practical, how-to-do-it courses chiefly of interest to persons in grade CAF-7 positions, or below, who are either working with these procedures, or who hope to train themselves for such positions, or positions requiring some familiarity with more than one of these procedural subjects (e.g., administrative assistants and head clerks).

NOTE: Courses preceded by a symbol and two figures (e.g., G-2-2 or L-3-3) are full-year courses now beginning the second half. Unless otherwise stated, new students will not be admitted to such classes unless they have had the first half or its equivalent or the consent of the instructor.

## OFFICE MANAGEMENT

### L-2. OFFICE MANAGEMENT

DANIEL M. BRAUM AND SPECIALISTS

F 6-8 beginning Feb. 5. \$12.

This course will include office layout, office housekeeping methods, formulation of office policy, organization of communications and records, preparation and use of forms, work planning and operational analysis, utilization of available facilities, care and operation of office equipment, employee orientation and supervisory techniques, methods of securing employee participation, work evaluation and employee rating.

Several of the major topics will be discussed by government officials brought in because of their specialized knowledge of various aspects of office management.

## CLERICAL-ADMINISTRATIVE PROCEDURES

### L-2. FEDERAL AUDITING PROCEDURE

CAREY G. CRUIKSHANK

W 6-8 beginning Feb. 3. \$12.

AND FRED J. KYTTLE

This short, intensive course is designed particularly to train audit clerks drawn from among employees now working in the lower grades as clerks, typists, machine operators, etc., and also to assist audit clerks in their present and prospective positions. It embraces explanations of, discussions on, and practice work with

the most important types of government vouchers and covers certain related procedures and documents. A manual is used which outlines in detail the various procedures.

The course covers general basic principles and definitions of terms; use of standard forms involved; General Accounting Office exceptions, and preparation of replies thereto; administrative suspensions and disallowances; application of statutes, regulations and the Comptroller General's decisions to auditing; special correspondence required in connection with such work; claims and adjustments; purchase order procedures; tax exemption; letters of authorization and travel authority; per diem allowances and computations; methods of travel; and the actual audit of Standard Form 1012 "Reimbursement" vouchers and Standard Form 1034 "Purchase" vouchers.

*NOTE: Persons who want a short, sped-up approach limited to minimum requirements should take this course. Persons who want more thorough training and a more comprehensive coverage of auditing procedures should take the full-year course (described immediately below), beginning in September, 1943.*

## L-2-2. AUDITING PROCEDURE

CAREY G. CRUIKSHANK

*M 6-8 beginning Feb. 1. \$12.*

Similar to the course above but more complete and thorough in treatment of the subject. This course is designed to assist audit clerks in their present and prospective positions and to enable government employees working in the lower grades as clerks, typists, etc., to fit themselves for more responsible and remunerative positions. It embraces explanations of, discussions on, and practice work with all types of government vouchers and related documents. A manual is used which outlines in detail all the various procedures. During the first semester, the course covers general principles and definition of terms; use of Standard Forms involved; purchase vouchers; claims and adjustments; General Accounting Office exceptions; formal and informal contracts; relation of procurement to auditing; tax exemption; transportation vouchers; suspensions and disallowances on all types of vouchers.

## L-2. FEDERAL ACCOUNTING PROCEDURE

WILLIAM D. PATRICK AND

*Section I—Tu 6-8 beginning Feb. 9.*

LESTER FRANK

*Section II—F 6-8 beginning Feb. 5. \$12.*

### INDICATE SECTION WHEN REGISTERING.

This course is designed particularly to train accounting clerks through instruction of employees now working in lower grades and also to assist accounting clerks in their present and prospective positions. It embraces explanation of, discussion on, and practice work with the basic ledgers (allotment ledger, objective classification ledger, and general ledger) maintained in connection with funds made available to Federal agencies. Appropriation, apportionment, allotment, disbursement, collection, and reporting processes will be discussed and the relationship between administrative accounts and the accounts kept by the Treasury Department and the General Accounting Office explained. (A more advanced course, Federal Government Accounting, is offered in the Department of Public Administration.)

## L-1. PURCHASING PROCEDURE

*Fall, 1943-44.*

## L-2. PERSONNEL PROCEDURE

VERNA C. MOHAGEN

*F 6-8 beginning Feb. 5. \$12.*

This course will deal with the regulations, details, and paper work involved in the processing of such personnel actions as: requests for certification; appointments,



changes in status, reinstatements, and transfers under War Service Regulations; recommendations for classification under the Ramspeck Act and Executive Orders; within-grade salary advancements under the Mead-Ramspeck Act and Executive Orders; demotions and removals due to "Fair" and "Unsatisfactory" efficiency ratings; preparation of separation registers; preparation of efficiency ratings; and leave accounting.

## L-2. COMMUNICATIONS AND RECORDS MANAGEMENT

L. E. DONALDSON, WILLIAM MULLER AND CHARLES T. SMITH

*Tu-F 6-7:30 beginning Feb. 2 and continuing for 24 sessions. \$12.*

Mails, files, and communications procedures. The course will embrace instruction in (1) communications, including mail handling, telegrams, messenger service; (2) records management, including planning of procedure in records units, subject filing, classification techniques, briefing and cross indexing, sorting and preparation of material, folder and guide arrangement, retirement of material to inactive status, searching, tickler systems, arrangement of offices, equipment and filing materials.

## ENGLISH FOR LETTERS AND REPORTS

### L-2. PRACTICAL ENGLISH USAGE

HELEN WILLIAMS

*Tu 6-8 beginning Feb. 2. \$12.*

This course will enable the student through practice to master the fundamentals of correct English. Troublesome problems of English usage, sentence structure, choice of words, style, and grammar, will be studied as aids to clear and forceful writing of letters, memoranda, and reports.

### N-0. VOCABULARY BUILDING

SALLIE M. PEASE

*Th 6-8 beginning Feb. 4. \$12.*

A course designed to help writers and speakers to express their ideas clearly and attractively. It embraces word study and selection, diacritical markings, synonyms and antonyms, prefixes and suffixes, usage exercises, and other means of developing a broad and useful command of words.

### L-2. GOVERNMENT LETTER WRITING

VERNE L. SAMSON

*Tu 6-8 beginning Feb. 2. \$12.*

The writing of Government letters from the organization of subject matter to the language of the letter, paragraphing, construction of effective sentences, and correct usage. Vocabulary building. Methods for improving expression. Development and application of appraisal standards. Discussion of the problems involved in dictating and reviewing correspondence and supervising letter writers from the standpoint of the stenographer, dictator, reviewer, and supervisor.

### L-2. WORKSHOP IN LETTER AND REPORT WRITING

*M 6-8 beginning Feb. 1. \$12.*

DR. GEORGE L. WHITE

The development of clear and forceful expression in reports, letters, and memoranda is the objective of this course. Although this is an advanced course in writing which presupposes a knowledge of the basic principles, particular emphasis will be placed upon methods of gaining increased skill in the application of the fundamentals of effective expression: planning and organizing material; using words appropriately; evidencing, through logical paragraphing and sentence structure, the proper sequence of ideas. This is a clinic course in which classroom discussion will be based upon the material written by members of the group.

## SECRETARIAL PRACTICES

### N-0. SECRETARIAL PRACTICES

LOWELL HATTERY

*Tu 6-8 beginning Feb. 2. \$12.*

Principles and methods of secretarial practices, developed by lecture, discussion, and consultation with experts, to qualify secretaries and stenographers to do better and more responsible work. Part of each session will be devoted to discussion of actual problems and helpful suggestions presented by members of the class.

Prerequisite: Stenographic experience or consent of instructor.

### N-0. ADVANCED SECRETARIAL PRACTICES

ALICE COFFMAN

*W 6-8 beginning Feb. 3. \$12.*

This course will emphasize the techniques of effective performance of the non-stenographic duties and responsibilities of the secretary; the personal qualities necessary for the private secretary; the amenities of the vocation; and the relation of the principles of secretarial work to office organization. Classroom discussions will be supplemented by actual secretarial practice.

Prerequisite: "Secretarial Practices" or equivalent.

## SHORTHAND

### N-0. BEGINNING GREGG (FUNCTIONAL)

DR. MARION M. LAMB

*Section I—M-Tu-Th 6-7 beginning Feb. 1.*

*Section II—M-Tu-Th 7-8 beginning Feb. 1. \$18.*

INDICATE SECTION WHEN REGISTERING.

The course is organized and taught on the basis of standards which should enable the completing student to read at a speed of 100 words a minute and write at from 80 to 100 words a minute. It will cover the complete system of Gregg shorthand by use of the functional method. It will continue for sixteen weeks, covering eighty lessons. This is a course for persons who are genuinely and seriously interested in learning shorthand quickly and effectively. It is limited to Federal employees who have a working knowledge of typing.

### N-0. INTERMEDIATE GREGG (FUNCTIONAL)

*Section I—M-Tu-Th 6-7 beginning Feb. 1.*

INSTRUCTOR TO BE ANNOUNCED

*Section II—M-Tu-Th 7-8 beginning Feb. 1. \$18.*

INDICATE SECTION WHEN REGISTERING.

This course, using the functional method, is intended for those who have completed the principles of Gregg shorthand and wish to develop speed in taking dictation. It may well serve as a review or refresher course for those who have not used shorthand recently and wish to reacquaint themselves with principles and to develop some facility in writing. Dictation speeds of from 80 to 120 words per minute will be developed.

NOTE: Intermediate Gregg (Functional) and Gregg, 70 to 100 Words differ chiefly in method used. Students who began with the functional method will probably wish to continue with it; students who did not begin with that method may choose the course thought to be most useful in terms of individual needs.

### N-0. GREGG, 70 to 100 WORDS

ALICE COFFMAN

*Tu-Th 6-7 beginning Feb. 2. \$12.*

This course is designed for those who desire a review of theory in Gregg shorthand with dictation from 70 to 100 words a minute. Special attention will be

given to the acquisition of a large vocabulary of Gregg outlines. Dictation will be graded from business letters, the Congressional Record, and legal and technical matter relevant to the work in government offices.

**N-0. GREGG, 100 to 130 WORDS**

**CLARA E. RICHTER**

*M-W 6-7 beginning Feb. 1. \$12.*

This speed, actual word count, is the equivalent of 100 to 150 words by the standard word count formerly used. This course is designed to develop speed in the more technical vocabularies. Subject matter will be selected and graded from the publications of the various bureaus in which members of the class are employed. Students who are primarily interested in dictation, such as stenotypists, may also enroll.

**N-0. PITMAN, 70 to 100 WORDS**

**LOUISE C. BARRY**

*Tu 6-8 beginning Feb. 2. \$12.*

A course designed for those who wish to review the principles of Pitmanic shorthand with dictation from 70 to 100 words per minute. Special emphasis will be placed on the acquisition of speed and accuracy by means of (1) the fundamental principles of phrasing, as determined by grammatical construction and Pitmanic theory; (2) the use of brief forms of constantly recurring and fundamental words; (3) the attainment of a stenographic vocabulary suitable for general business and governmental work; (4) the development of increased accuracy and precision in the formation of outlines to attain instant legibility.

**N-0. PITMAN, 100 to 130 WORDS**

**LOUISE C. BARRY**

*F 6-8 beginning Feb. 5. \$12.*

(Students who show ability to exceed the 130-word speed will be given ample opportunity.) The art and theory of phraseology in the acquisition of speed; the use of the ticks; the theory and practice of expert expedients including the principles of omission, fictitious primitives, alternatives and consecutives, and in general the technique and style of rapid Pitmanic shorthand. The dictation material will be the records of committee hearings. A conference and clinical meeting will be held two hours each week from 6 to 8 on Fridays, supplemented by practice exercises at times to be arranged convenient to the members of the class.

**N-0. REPORTING, 130 to 150 WORDS**

**CLARA E. RICHTER**

*M-W 7-8 beginning Feb. 1. \$12.*

The speed is based on actual word count and is the equivalent of 150 to 175, standard word count. This is a continuation of the 100 to 130 word class with special emphasis on reporting technique.

**N-0. ADVANCED REPORTING, 150 WORDS AND UP**

*M-W 7-8:30 beginning Feb. 1. \$12.*

**CLARA E. RICHTER**

This class will be combined with the class in Reporting, 130 to 150 Words, for drill and speed dictation in technical vocabulary. From 7 to 7:30 the emphasis will be placed on dictation at 150 actual words a minute and up.

**N-0. SHORTHAND IN SPANISH *Fall, 1943-44.***

**GRACE M. BAUER**

**N-0. ADVANCED SHORTHAND IN SPANISH**

**GRACE M. BAUER**

*Tu 6:30-8:30 beginning Feb. 2. \$12.*

Dictation of business letters and commercial articles on Latin American subjects; reading of notes; incidental review of Spanish Gregg Shorthand Manual.

Prerequisite: Shorthand in Spanish.

## SPECIAL COURSES

### N-0. THE CLASSICS (St. John's College Program)

*Tu 8-10 beginning Feb. 2. Limited to 25 students. Special fee \$15.*

This seminar in some of the classics of poetry, history, philosophy and criticism is offered in cooperation with St. John's College. The method of this course will be the dialectic of the seminar, in which the book read will be the common ground for group discussion.

The books to be discussed: (1) Herodotus, *History*, Book I; (2) Herodotus, *History*, Books VII-IX; (3) Aeschylus, *Oresteia*; (4) Sophocles, *Oedipus Rex*, *Oedipus Coloneus*, *Antigone*; (5) Aristotle, *Poetics*; Longinus, *On the Sublime*; (6) Euripides, *Hippolytus*, *Bacchae*; (7) Plato, *Symposium*; (8) Shakespeare, *Lear*, *Coriolanus*; (9) Shakespeare, *Henry IV*, Parts I and II; (10) New Testament, *John*, *Romans*; (11) Plato, *Republic*, Books I-V; (12) Plato, *Republic*, Books VI-X; (13) Dante, *Divine Comedy*, *Inferno*; (14) Dante, *Divine Comedy*, *Purgatoria*; (15) Dante, *Divine Comedy*, *Paradise*.

### G. EXTENSION THESIS

MEREDITH C. WILSON

*Registration fee \$3.*

An opportunity will be afforded to qualified persons who desire to undertake a study of an agricultural extension problem and submit a thesis. The amount of credit, to be determined by a thesis committee, will be based upon the nature of the problem, amount of work, and quality of the thesis.

NOTE: *The other courses usually offered in Extension Education are deferred until further notice.*

### L-1-1. INTERIOR DECORATION

HARRIET GARRELS

*W 6-7 beginning Feb. 3. \$6. If class desires, the hour may be changed to 7 to 8 p.m.*

The first semester includes color, principles of arrangement, walls, floor coverings, window treatments, and lighting. The second semester includes the study of furniture (modern and antique), the most popular English and American period styles, including modern accessories; pictures; and flower arrangement.

New students admitted.

### U-2. MEXICAN CULTURE

EDMUNDO LASSALLE

*W 6-8 beginning Feb. 3. \$12.*

A survey of the architecture, painting, decorative and popular arts of Mexico, with emphasis on Indian attributes. Precortesian culture; architecture and painting in the sixteenth and seventeenth centuries; the era of the great cathedrals; nineteenth century neo-classicism; contemporary painting and its world importance; the Mexican artistic renaissance; revival of Indian crafts. This course could also serve as an interpretation of Latin American culture as a whole.

### N-0. PERSONAL DEVELOPMENT

HESTER BEALL PROVENSEN

*W 6-8 beginning Feb. 3. \$12.*

Discovery and development of the potentialities of each student. Poise, confidence, appearance, make-up, dress and color sense, art of conversation, cultivation of wider range of interest, and curiosity. Actual social situations created and discussed. Conferences, guest speakers.



## FACULTY

### SECOND SEMESTER

REYNOLD E. ASK, B.S., George Washington. Associate Photogrammetric Engineer, Coast and Geodetic Survey. Taught in George Washington University. (Engineering and Mechanical Arts)

JOHN J. BACHMANN, C.P.A., A.B., St. Thomas; M.S.C., Southeastern. Chief Accountant, Segregated Funds Division, Commodity Exchange Branch, Agricultural Marketing Administration. Taught in St. Thomas College and American Institute of Commerce. (Public Administration)

LOUISE C. BARRY, B.L., J.D., California. Stenographer, Solicitor's Office. (Office Skills)

GRACE M. BAUER, A.B., M.A., George Washington. Stenographer, Division of American Republics, Department of State. (Office Skills)

RICHARD O. BEEN, A.B., M.A., George Washington. Senior Agricultural Economist, Bureau of Agricultural Economics. (Social Sciences)

EARL H. BELL, A.B., Iowa State Teachers; Ph.D., Wisconsin. Senior Agricultural Economist, Bureau of Agricultural Economics. Taught in Universities of Wisconsin and Nebraska. (Social Sciences)

F. C. BISHOPP, B.S., Colorado State; M.S., Southern Methodist; Ph.D., Ohio State. Assistant Chief, Bureau of Entomology and Plant Quarantine. Taught in Colorado Agricultural College and University of Maryland. (Biological Sciences)

ARCHIE BLAKE, B.S., M.S., Ph.D., Chicago. Engineer, National Inventors Council, Department of Commerce. Taught in Georgia School of Technology. (Mathematics and Statistics)

SIDNEY F. BLAKE, A.B., M.A., Ph.D., Harvard. Senior Botanist, Bureau of Plant Industry. Formerly Professor of Botany, Stanford University. (Biological Sciences)

H. W. BLALOCK, A.B., Louisiana State; M.A., Ph.D., Illinois. Consultant, Federal Power Commission. Taught in University of Arkansas. (Utility Administration and Regulation)

DAVID I. BLUMENSTOCK, B.S., Chicago; graduate study, California. Assistant Meteorologist, Weather Bureau. Taught in University of California. (Physical Sciences)

C. VERNE BOWEN, B.S., Denison; M.S., Washington and Jefferson. Assistant Chemist, Bureau of Entomology and Plant Quarantine. Taught in Washington and Jefferson College. (Physical Sciences)

DANIEL M. BRAUM, A.B., Kansas State. Senior Administrative Officer, Division of Training, Office of Personnel. (Office Skills)

IRA T. BRAUNSTEIN, LL.D., Royal University, Lemberg, Austria; graduate study, New York University. Clerk, Commodity Credit Corporation. (Language Aids)

FERDINAND G. BRICKWEDDE, A.B., M.A., Ph.D., Johns Hopkins. Chief, Low Temperature Laboratory, National Bureau of Standards, Department of Commerce. Lecturer in Mathematics, National Bureau of Standards. (Mathematics and Statistics)

ELMER J. BRIGGS, JR., B.S. in M.E., Texas. Chief, Engine Unit, Aircraft Engineering Division, Civil Aeronautics Administration. (Engineering and Mechanical Arts)

WILLIAM K. BROWNOLD, B.S.C., Southeastern. Chief, Budget and Reports Section, Federal Crop Insurance Corporation. (Public Administration)

HOWARD BRUNSMAN, B.C.S., M.A., Ohio State. Chief, Housing Statistics, Population Division, Bureau of the Census. (Mathematics and Statistics)

JAMES L. BUCKLEY, LL.B., Georgetown. Assistant Director of Personnel, Department of Agriculture. (Public Administration)

WALTER G. CADMUS, JR., B.S. in Agricultural Engineering, Kansas. Specifications Writer, Bureau of Agricultural Chemistry and Engineering. (Engineering and Mechanical Arts)

ELIZABETH C. CALLISON, A.B., Oberlin; M.S., Yale; graduate study, Mt. Holyoke, Harvard Medical School, Marine Biological Laboratory, and Johns Hopkins School of Hygiene and Public Health. Associate Physiologist, Bureau of Home Economics. Taught in Mt. Holyoke College, Yale School of Medicine, Goucher College, and Yale School of Nursing. (Biological Sciences)

HERBERT O. CALVERY, B.S., Greenville, A.B., M.S., Ph.D., Illinois. Guggenheim Fellow, Research in Europe. Chief, Division of Pharmacology, Food and Drug Administration, Federal Security Agency. Taught in Johns Hopkins University and University of Michigan Medical School. (Physical Sciences)

WALKER E. CAMPBELL, B.S., M.S., advanced graduate study, Illinois. Head Accountant, Accounting Division, Office of Price Administration. Taught in University of Illinois, Canal Zone College, and Wharton School, University of Pennsylvania. (Public Administration)

A. GEORGE CARLTON, A.B., Gustavus Adolphus; graduate study, Johns Hopkins. (Mathematics and Statistics)

ARTHUR P. CHEW, Special Writer, Office of Information. (Language Aids)

LELAND B. CLARK, B.S., California. Senior Mechanic, Radiation Research, Smithsonian Institution. Formerly Instructor of Electrical Engineering, University of California, and Physicist, San Francisco Research Laboratory. (Engineering and Mechanical Arts)

ALICE COFFMAN, Chief Clerk, Economic Objectives Division, Office of Economic Warfare Analysis, Board of Economic Warfare. (Office Skills)

JEROME CORNFIELD, B.S., New York. Statistician, Department of Labor. Taught in American University. (Mathematics and Statistics)

CAREY G. CRUIKSHANK, A.B., King. Fiscal Officer, Office of Scientific Research and Development, Office for Emergency Management. (Office Skills)

RAUL D'ECA, M.A., Ph.D., George Washington. Associate Foreign Language Editor, Office of the Coordinator of Inter-American Affairs. Taught in George Washington University. (Language Aids)

GARRETT DE MOTTS, B.S., Western State Teachers (Michigan); graduate study, Michigan State and Chicago. Junior Meteorologist, Weather Bureau. (Physical Sciences)

L. E. DONALDSON, Chief, Communications Division, Office of Plant and Operations. Thirteen years' experience in records management work. (Office Skills)

GUSTAVO DURAN, M.A., Madrid. Executive Assistant, Music Division, Pan American Union. Formerly lecturer in Spanish, Columbia University. Also taught languages in private schools in Spain and France. (Language Aids)

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